

Chemical Week

August 22, 1953

Price 35 cents



► Second surge along the Ohio; here's who's building what in the chemical boom p. 26

There's new emphasis on scholarship grants; reason: to court technical manpower p. 35



► Singled out for chemical engineering's top award: Carbide's coal upgraders p. 42

Linde bets \$13 million that there's room for three in burgeoning silicones p. 53



► Rain revives drought-dimmed cotton defoliant prospects; year's goal: \$10 million sales . . . p. 55

WESTVACO WYOMING'S ON STREAM!



The First New Soda Ash Producer in 35 Years Now Making C/L Shipments

Completed in record time, Westvaco Wyoming is fast approaching capacity output of Soda Ash that meets or exceeds every commercial standard of purity. Physically, Westvaco Wyoming Light Soda Ash is distinguished by its needle-like crystalline structure. Its crystalline nature gives it excellent dispersal properties in water, which results in a rapid dissolution rate. A unique, non-caking material, it has excellent flowability . . . is easier to handle in processing operations.

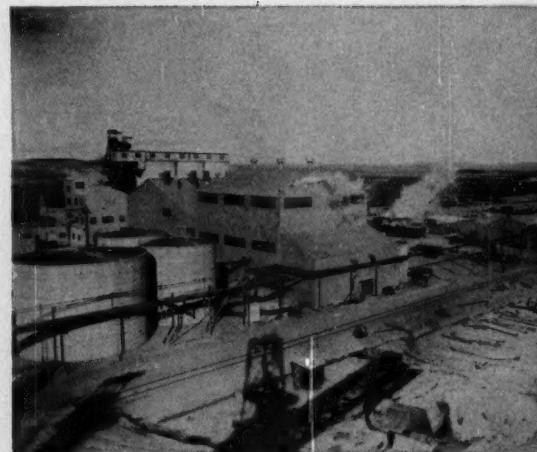
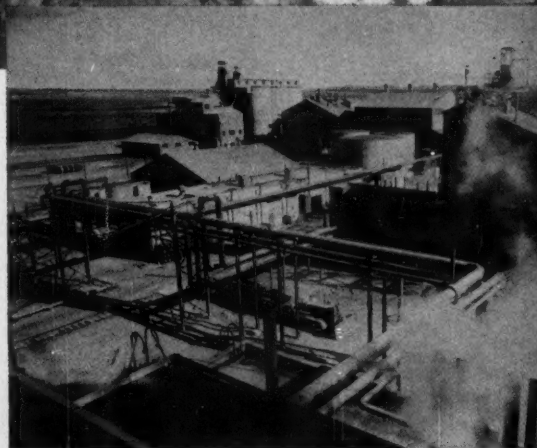
First major alkali production in the Intermountain area, this new plant has an installed capacity of 300,000 tons per year. Standing squarely atop 250 million tons of unbelievably pure trona, it has proved-up reserves sufficient to supply the entire needs of all industry for the next 35 years. Industries now using 30% of all U. S. Soda Ash can be served economically from this location.

Soda Ash users from the Mississippi Valley to the Pacific will immediately benefit by this new nearby source of higher quality Light and Dense Ash. Ultimately, all users everywhere will benefit by the stabilizing influence of this development of a great natural resource. We will be pleased to furnish specifications, samples and prices to prospective users.



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FOOD MACHINERY AND CHEMICAL CORPORATION
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Chemical Week

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August 22, 1953 • Chemical Week

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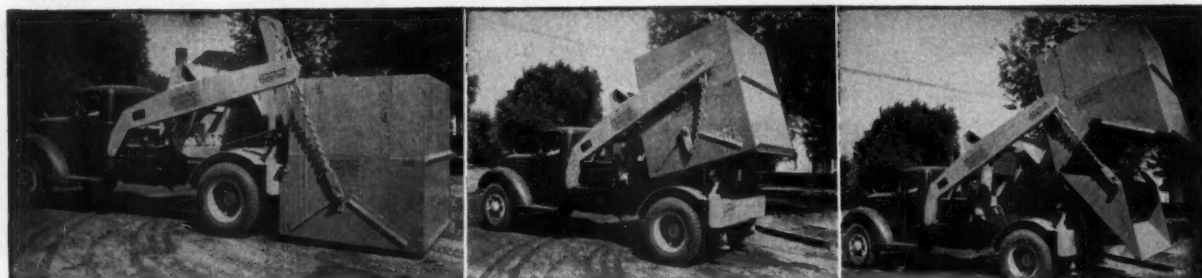
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POWER

STAINLESS PRODUCTS CO.
 200 HARRISON ST., PHILADELPHIA 23, PA.

Suppose we put the Dempster-Dumpster System right down in your plant . . . then what?



- *Well First—let's make it clear that we are furnishing you with several sizes of different designs of 26 containers to suit your materials requirements. Then bear in mind that we are delivering you only one truck-mounted Dempster-Dumpster and with your driver this one outfit picks-up, hauls and dumps all containers, about like the one shown above.*

Now, how many conventional trucks are you using for handling rubbish, scrap, raw materials, and what have you?

For several years now, one plant has been doing considerably more work with two Dempster-Dumpsters and two men than they did with five trucks and fifteen men before the Dempster-Dumpster System was installed. You can guess at the approximate savings annually.

A glance at the picture below and you get the whole story of the Dempster-Dumpster System. Never before have you been able to cut bulk materials

handling costs so drastically.

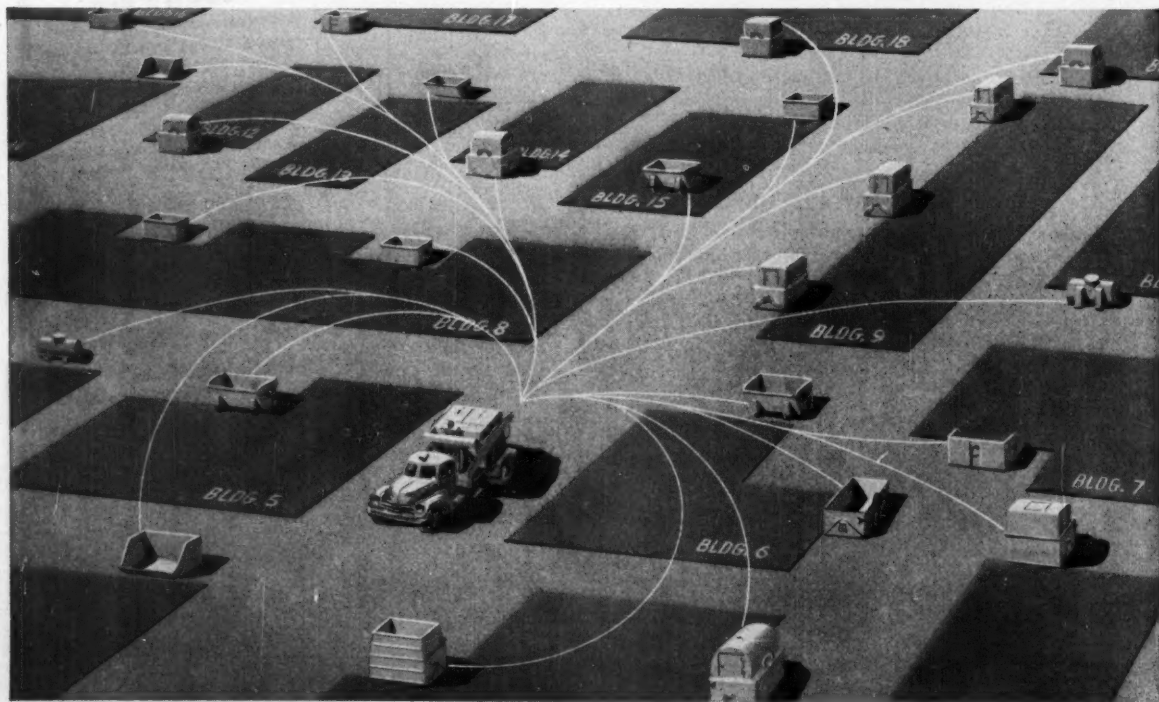
One truck mounted Dempster-Dumpster handles the entire group of 26 Dempster-Dumpster containers. These big, detachable steel containers are like having 26 truck bodies for a single truck.

Any required number of Dempster-Dumpster containers are spotted at convenient materials accumulation points inside and outside your buildings. They range in sizes up to 12 cu. yds.—3 to 4 times the capacity of a regular dump truck. Materials—bulky, light, heavy, solids, rubbish and even liquids—are dumped or placed into these containers.

The truck mounted Dempster-Dumpster makes scheduled rounds, picks up each preloaded container, carries it to the point of disposal, sets it down intact or dumps the materials and returns the container for refilling. The entire operation is hydraulically controlled and handled by your truck driver.

It's as simple as we have described it. The amazing thing is the tremendous savings being made by the Dempster-Dumpster System in hundreds of leading industrial plants over the nation.

A product of Dempster Brothers, Inc.



DEMPSTER BROTHERS, 283 Dempster Bldg., Knoxville 17, Tenn.

OPINION....

PB's Indexed

TO THE EDITOR: ... I read with interest your news article "There for the Digging" (June 27) ... in which you report on the renewed interest in wartime German chemical research. The Office of Technical Services, as you know, publicizes the Publication Board reports (which includes the German language literature you mentioned) in the monthly Bibliography of Technical Reports. However, there has never been made available an adequate index to these documents...

Since February of this year I have compiled and published an Index to PB Reports ... monthly ... cumulatively every six months...

It occurred to me that this footnote might interest your readers...

NINA HOLT BRADSHAW
Director

Technical Information Service
Washington, D. C.

Worse for Less

TO THE EDITOR: The Ruskin quotation in your editorial (July 25) reminded me of an old couplet, author anon., that I have carried in my mind for many years!

"There never was a product made
(This truth you must confess)

But what some bird could make it
worse

And sell his stuff for less."

S. F. CONYBEAR
Assoc. Research Director
Colgate-Palmolive-Peet Co.
Jersey City, N.J.

Persistent Ciphers

TO THE EDITOR: Congratulations on your nice write-up about Canada's booming chemical industry (Aug. 1).

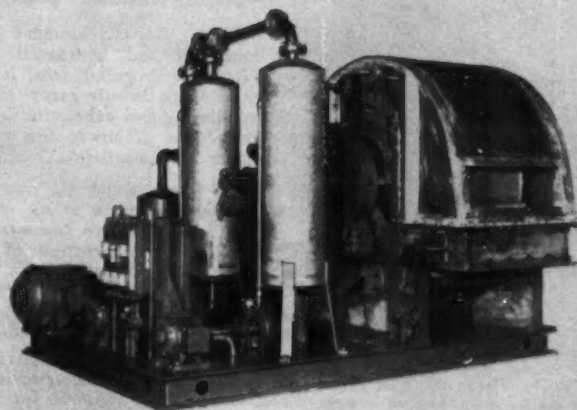
Many of us in the alkali-chlorine industry have been searching for years for an economical process that will produce chlorine with only a minor fraction of the equivalent caustic soda that one gets by the electrolytic decomposition of salt brine.

According to your news article, our friends at Duvernay, Alberta, appear

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N.Y.

Eimco Pilot Filter Stations Give Accurate Data



The machine pictured above is another example of Eimco custom filter design and construction. The filter is installed in one of the country's large pharmaceutical plants producing antibiotics and the construction incorporates Eimco's popular package unit design.

The filter unit is a 4 foot diameter by 2 foot face size — of all type 316 stainless steel materials with multiple cake washing apparatus, vapor tight hood, roller discharge and other features. The filter with all of its accessories is mounted on a single platform with all piping and valves connected, all electrical wiring from motors to a central control panel. The unit arrives at the user's plant ready to run.

When your problem involves filtration consult an Eimco engineer first. Our more than half a century of service to the process industries gives us the necessary background to specify and build the proper equipment to do the best job for you at least expense.

Eimco manufactures all types of filtration equipment — our purpose is to suit the best type to your needs whether it be pressure, vacuum, gravity or any combination of these types.

EIMCO

THE EIMCO CORPORATION

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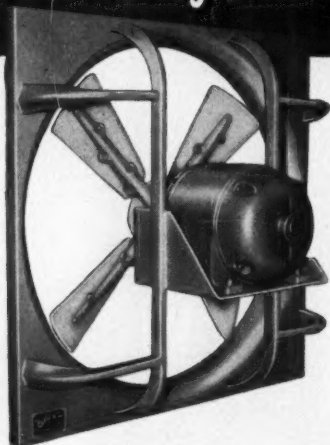
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IN ENGLAND: EIMCO (GREAT BRITAIN) LTD., LEEDS 12, ENGLAND

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BUILT TO HANDLE MORE JOBS BETTER!

These Husky New "Buffalo" DISK FANS



- Many sizes, to 90,000 cfm!
- Free air or pressures to 1"!
- Easily installed "packages"!

With the development of this improved and broadened line of "Buffalo" Propeller fans, it is now possible to handle many additional ventilating and exhausting jobs with these fans at lower first cost and lower cost installation.

Left, Heavy-gauge 4-bladed wheels for safe operation at tip speeds up to 13,000 fpm are characteristic of the sturdy construction of Heavy-Duty "NV" Propeller Fans.

The HEAVY-DUTY TYPE "NV"

Above, is built in 24", 30", 36", 42", 48" and 54" sizes, direct or v-belt drive, for free air delivery or against system resistances as high as 1". Fans may be had with special protective coatings, stainless steel wheels, hard aluminum,

Non-Sparking Everdur wheels for handling fumes with moisture, acids, alkalis and various gases. Models for high or low ambient temperatures are available. WRITE FOR BULLETIN F3790.

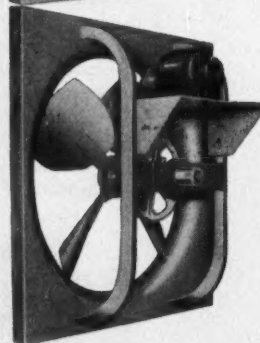
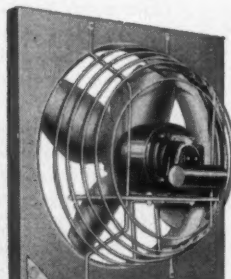
NV-BREEZO

"Diamond Jubilee" Fans

Rugged, attractive and eye-appealing, this fan has a steep pressure characteristic combined with efficient free-air performance! Thus, you can get stable, efficient and high capacity performance from this fan in simple wall installations or ventilating systems with $\frac{1}{4}$ " to $\frac{1}{2}$ " s.p. The rigid, welded motor-side wire guard is also a firm motor support. May be had in protective coatings, Stainless Steel, #3S Aluminum or Everdur brass for corrosive and/or explosion-proof applications. 8" to 24" sizes. WRITE FOR BULLETIN 3865.

The 24", 30" & 36" BELT-AIR is a top performer from any angle!

Its new sleeve bearing on the fan shaft permits fan operation at any angle from vertical to horizontal, shaft up, and provides quieter vertical shaft operation than ball bearings. Other major design changes provide higher capacities at lower, quieter speeds, and lower power consumption, also as a lay-down unit with motor and bearing assembly on discharge side. Also new Belt-Airs available in larger sizes 42" thru 84". This line effectively covers ranges from 5000 to 90,000 cfm. One of the units on this page may be just the economical, satisfactory fan you're looking for—WRITE FOR ENGINEERING DATA NOW!



BUFFALO FORGE COMPANY

189 MORTIMER ST.

First For
Fans

BUFFALO, NEW YORK

PUBLISHERS OF "FAN ENGINEERING" HANDBOOK
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.
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PANEL BREEZO FANS
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BELTED VENT SETS
"L" BREEZO FANS

BELT-AIR FANS
"NV" BREEZO FANS

OPINION

to have found it. 24 million tons, whew! But where are they going to sell it? Obviously it's a typographical error, but I couldn't resist pulling your leg about it.

G. E. GOLLOP
Canadian Industries Ltd.
Montreal, Can.

In converting from lbs. to tons some extra ciphers survived to switch 24 tons a day to the more astronomical figure.—Ed.

No Place to Hide

TO THE EDITOR: . . . That's a fascinating idea you reported . . . feeding barbiturates to fingerlings . . . air-ferried to restock lakes and rivers. . . .

I thought you might like to know that a local columnist, Paul Flowers of the *Commercial Appeal*, picked it up and indulged in a little philosophizing. . . . See the enclosed clipping. . . .

PAUL R. LOSEE
Memphis, Tenn.

Some of Columnist Flowers' mental meanderings:

"One thing in science always leads to something else, that's why we have progress. Every new weapon in war brings along a defense to negate it; if your new car turns up 90 miles an hour, science comes along with an electronic gadget to convict you for speeding.

"As somebody has said, there's no place to hide . . . and now we must contemplate the possibility of drug addiction in fish . . . which might open challenging new realms in social reform . . . provide excuse for a chain reaction of doctoral dissertations in institutions of higher learning. . . .

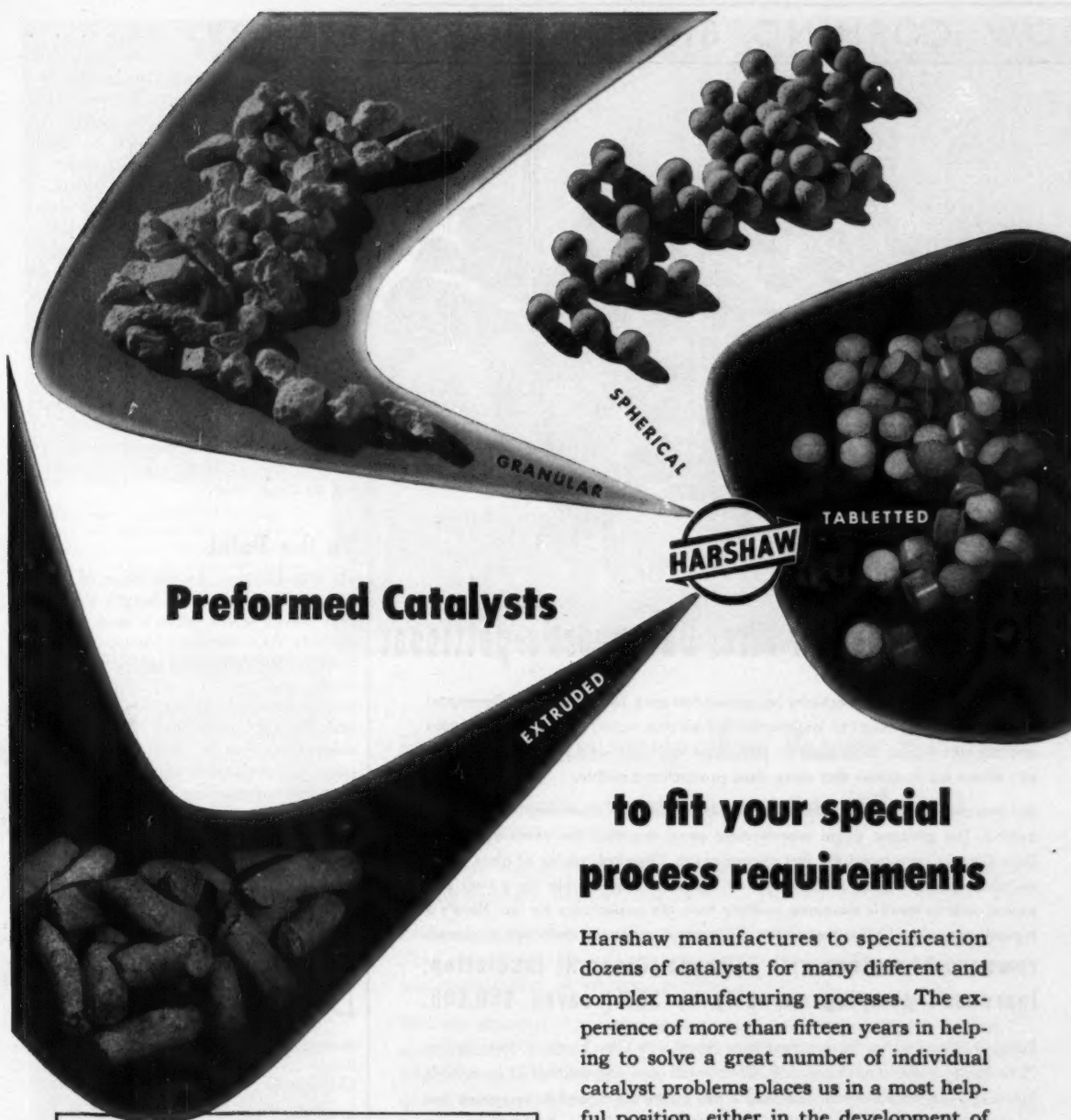
"But . . . do the fish have to have a prescription?"—Ed.

Unitized Shipments

TO THE EDITOR: We are pleased to see that CW (Aug. 1) reports that Monsanto Chemical is offering "unitized" carloads of bagged phthalic anhydride that can be unloaded by forklift trucks. This bypasses the pallets but takes advantage of the palletized handling economies.

Yes, we are pleased to see the CW item, but we do not want either you or Monsanto to think that this is pioneering. J. M. Huber Corp., as of a few years ago, pioneered this disposable-pallet unit-load method in the clay industry. It is now backed by several thousand carloads of shipments.

The Huber method, if we may state it modestly, goes one step farther than



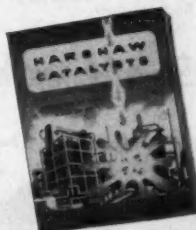
Preformed Catalysts

to fit your special process requirements

Harshaw manufactures to specification dozens of catalysts for many different and complex manufacturing processes. The experience of more than fifteen years in helping to solve a great number of individual catalyst problems places us in a most helpful position, either in the development of the best and most economical catalyst, or in qualifying with large production capacity

requirements. If you have a problem, perhaps a discussion with us will prove helpful.

SEND FOR this 8-page booklet on Harshaw Catalysts



PROCESS

Hydroforming	Cyclization	Oxidation
Dehydrogenation	Dehydration	Desulphurization
Alkylation	Isomerization	Hydrogenation

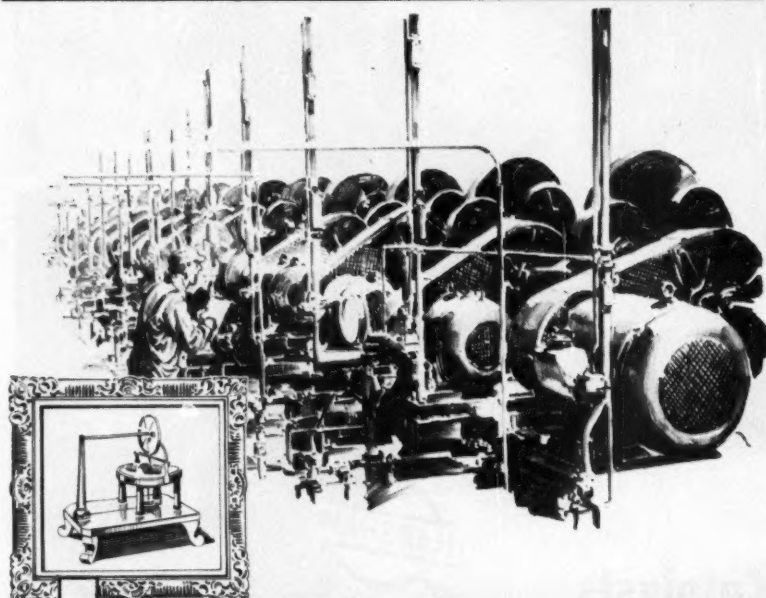
TYPICAL CATALYSTS

Aluminum Chloride Anhydrous
Boron Fluoride Addition Compounds
Boron Trifluoride
Hydrofluoric Acid Anhydrous

Alumina	Chrome Alumina	Molybdena Alumina
Tungsten Alumina	Cobalt	Copper
Magnesia	Nickel	Vanadium

BRANCHES IN PRINCIPAL CITIES

THE HARSHAW CHEMICAL CO.
1945 East 97th Street, Cleveland 6, Ohio



We've outgrown Mrs. Davenport's petticoat

Our dependence upon electricity has grown fast since 1837 when Tom Davenport used his wife's petticoat to insulate the first electric motor. Now electricity cooks and freezes for us; turns night to day. It carries sights and sounds through the air; drives the machines that make mass production possible.

But improvements in the insulating materials that harness electricity have lagged behind. The greatest single improvement came less than ten years ago when Dow Corning introduced the first silicone resins. Chemical cousins of glass, these resins complement glass cloth, mica and asbestos. They double the power per pound ratio in electric machines; multiply their life expectancy by ten. Here's a typical example of what that means. To increase output of chemicals, engineers rewound 31 motors with Silicone (Class H) Insulation; increased pumping capacity by 30%; saved \$50,000.

Rated at 50 and 60 hp, those motors were rebuilt with Class H insulation to deliver 75 to 90 hp. It would have cost \$68,200 to install new, conventional 75 hp motors. Rewinding cost only \$19,000. And failure rate on the old 50 and 60 hp motors was one a month, 48 failures in 4 years. Rewound with Class H insulation, those same motors have delivered at least 50% more power for 4 years with only 6 failures. Equally useful in the form of fluids, lubricants, protective coatings, water repellents and rubbery solids it will pay you to find out how

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England: Midland Silicones Ltd., London

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Cleveland
Dallas
Detroit

Midland, Michigan

Los Angeles
New York
Washington, D. C.
(Silver Spring, Md.)

the Monsanto method. Our kaolin clay unit-load shipments are de-aired. This makes them about 25-30% more compact and easier and safer to load. And the bags, as they roll down a de-airing conveyor, are spot-glued.

We developed the unit-load shipment method in conjunction with the Meade Board Sales Co., and Meade's Poke-Pak fibre board is now widely used in a number of industries for unit-load handling.

JACK WATSON
Director of Market Research
J. M. Huber Corp.
New York, N.Y.

Our news nod was to Monsanto for slick handling of phthalic; herewith another nod to Huber for its pioneering in clays.—Ed.

To the Point

TO THE EDITOR: In the issue of Aug. 8 you discuss at some length the current naval stores picture and its potentials. As a medium for news in the field of the chemical industries generally and not specializing in naval stores reporting by any stretch of the imagination, you have covered the subject extremely well and to the point. It should arouse comment among your readers . . . at some time in the not too distant future another review might be desirable.

ERNEST E. HOLDMAN
Director and Manager
Overseas Dept.
Newport Industries, Inc.
New York, N.Y.

DATES AHEAD

American Chemical Society, 124th national meeting, Conrad Hilton hotel, Chicago, Ill., Sept. 6-11.

Synthetic Organic Chemical Manufacturers Assn., Commodore hotel, New York, N.Y., Sept. 9.

National Agricultural Chemicals Assn., annual meeting, Essex and Sussex hotel, Spring Lake, N.J., Sept. 9-11.

American Institute of Chemical Engrs., Fairmont and Mark Hopkins hotels, San Francisco, Calif., Sept. 13-16.

The Electrochemical Society, Ocean Terrace hotel, Wrightsville Beach, N.C., Sept. 13-16.

American Assn. of Textile Chemists and Colorists, annual meeting, Conrad Hilton hotel, Chicago, Ill., Sept. 17-19.

Chemical Market Research Assn., fall resort meeting, Pocono Manor Inn, Pocono Manor, Pa., Sept. 17-19.

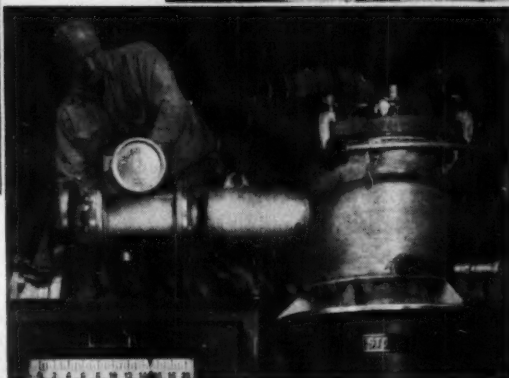
Assn. of National Advertisers, annual meeting, Hotel Drake, Chicago, Ill., Sept. 21-23.



Operator removes boxes of tubular paper capacitors from Stokes Vacuum Impregnator at Pyramid Electric Co., North Bergen, N. J. Capacitors have been impregnated with mineral oil to improve stability and lengthen service life.



Installation of Stokes Rotary Vacuum Dryers used by Metals Disintegrating Co., Berkeley, California, for drying of aluminum powder. Highly oxidizable materials can be handled without any danger of combustion or explosion when processed in vacuum.



Operator transfers evacuated retort from heating to cooling station of Stokes Vacuum Annealing Furnace, built for processing, annealing and other heat treatment of titanium, zirconium, hafnium and copper.



Operator loads shell-frozen human blood plasma into one of the Stokes drying chambers of the lyophilizing plant at the Sharp & Dohme, Inc. biological laboratories, Glenolden, Pennsylvania.

There is no romancing about Vacuum at Stokes!

Vacuum processing starts with a vacuum-tight system and pumps to exhaust the air.

These are simple truths, the significance of which is never forgotten among men who have worked for many years in vacuum engineering.

Stokes men have many years of *engineering* experience, *shop* experience, *operating* experience in the design, construction and installation of vacuum processing systems.

But the absence of romancing in Stokes' thinking implies no want of imagination! Indeed, the practical application of vacuum processing—which gives us blood plasma, the "wonder drugs", costume jewelry, diesel locomotive motors, radio and electronic communication—had much of its inception in Stokes laboratories; takes practical shape in Stokes vacuum processing equipment for industry.

Stokes is **FIRST** in Vacuum . . . in great and small industrial plants, in schools, hospitals, and laboratories throughout the world.

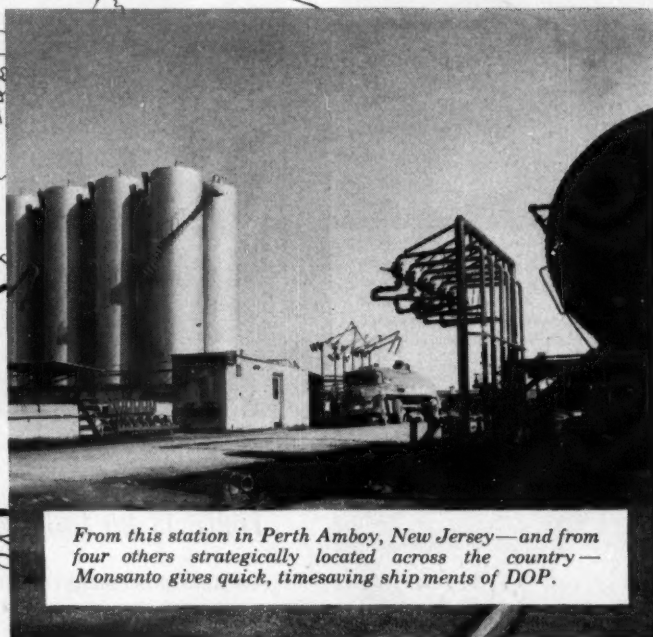
F. J. STOKES MACHINE COMPANY, PHILADELPHIA 20, PA.

STOKES

STOKES MAKES: High Vacuum Equipment, Vacuum Pumps and Gages/Industrial Tableting, Powder Metal and Plastics Molding Presses/Pharmaceutical Equipment

August 22, 1953 • Chemical Week

Five
Monsanto Bulk
Storage Stations
to Give You
Fast Service
on DOP



From this station in Perth Amboy, New Jersey—and from four others strategically located across the country—Monsanto gives quick, timesaving shipments of DOP.

**FAST SERVICE REGARDLESS
OF YOUR LOCATION**

From:
Long Beach, California Akron, Ohio
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Everett, Massachusetts

Regardless of your location you can get fast service from one of these DOP bulk storage stations. Shipments will be made promptly in

Tank Truck . . .



Tank Car.



or Drum.



We would like you to test our delivery. For full information, pick up the phone and call your nearest Monsanto sales office or write: MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 800 North Twelfth Blvd., St. Louis 1, Missouri.

PLASTICIZERS



SERVING INDUSTRY...
WHICH SERVES MANKIND

NEWSLETTER

There's still plenty of steam behind the expansion drive. On the same day last week two companies moved forward:

- Monsanto will build a second phosphorus furnace at its Monsanto, Idaho, plant site. This will give the firm—world's largest producer of the element—eight furnaces in all: six in Tennessee, two in Idaho.

- Shell Chemical will build an allyl chloride and epichlorohydrin plant near Shell Oil's Norco refinery at New Orleans. The products will be made from the refinery's propylene and other feed stocks, will be used to boost Shell Chemical's synthetic glycerine capacity by 25 million lbs./year. Completion is scheduled for late next year.

- The Atomic Energy Commission will spend \$5 million to convert the Lake Ontario Ordnance Works at Youngstown (near Niagara Falls) to "provide facilities for a classified production process." Hooker Electrochemical will operate a large part of the plant. The \$32-million works was built during World War II, used briefly for TNT manufacture, turned over in 1948 to the AEC, which has used it to store radioactive contaminated equipment. Target date for the reconversion: Jan. '55.

- A smaller government investment is the Bureau of Mines' new experiment station at Reno, Nev., cornerstone of which was laid last week. It's primarily for research on rare and precious minerals, but will also work on such strategic ores as fluorspar, manganese, sulfur, talc and tungsten. The station has operated since 1920 in University of Nevada buildings, but the 82nd Congress appropriated \$750,000 for separate facilities.

Biochemical researchers have come up with a couple of discoveries that may well become significant to industry:

- University of Southern California scientists have proved the effectiveness of sorbic (2,4-hexadienoic) acid in retarding mold growth on cheese. Nontoxic, odorless and colorless, sorbic acid looks like a good bet for application to wrappers, not only for cheese but also for pickles, meats and other prepackaged foods.

- Still to be proved is the effectiveness of two chemicals, isopropyl biguanide and benzoyl guanylurea, against influenza virus. Both work well in chick embryo tests, but tests on live infected animals still lie ahead. Work is in progress at Oregon State College.

Are researchers in industry missing a lot of valuable government research reports? That's the question the National Science Foundation will seek to answer by a study it has just undertaken.

These reports are made available (CW, June 27) through the Dept. of Commerce's Office of Technical Services, but the catch is that OTS abstracts only about 300 of the 1,000-odd reports turned over to it by various agencies every month. It doesn't have room in its monthly "Bibliography of Technical Reports" for more than that number, so it picks out those it thinks to be of greatest value to industry.

But on the chance that some of the seven-out-of-ten "culls" may be of value, and since under the present setup they are virtually buried,

NSF will try to find out just how important this unpublicized material actually is.

•

Close to 400 researchers will be out of a job week after next. That's the report from the West Coast, where the Atomic Energy Commission is said to be reducing by that figure its 1,000-man staff at the Livermore Research Laboratories, operated for AEC by California Research and Development Co. The lab, opened in 1950 on the site of the Livermore Naval Air Station, has concentrated on one phase of hydrogen bomb development, and now a "change in the work requirements of the AEC" is given as the reason for the personnel pruning.

•

Even though Congress isn't in session, Washington wheels are still turning. The Dept. of Justice took a step last week that's designed to speed the sale of General Aniline & Film.

It was simply a legal notice that in effect sets a January 1 deadline for anyone who wants to participate in the suit brought by I. G. Chemie stockholders, who are attempting to establish their rights in the multi-million-dollar chemical firm. It's significant, though, for without it tardy stockholders could file suit after suit, thus keeping the case in court for years, and hold up GAF's eventual sale.

•

In Washington, too, it turned up that South Korea has an eye on one of Reconstruction Finance Corp.'s synthetic rubber facilities, disposal of which was authorized in the closing days of Congress. Who'll eventually buy what plant is in the hands of the disposal commission, which is now being organized and which will report to Congress in Jan. '55.

•

And one Washingtonian sent another a letter, text of which was released last week. Surgeon-General Leonard Scheele, U. S. Public Health Service, told Office of Defense Mobilization Director Arthur Flemming that increasing imports of foreign-made microscopes, accompanied by a reduction in domestic capacity, may have "eventual impact on both the industry and the health and welfare of our . . . population."

Figures he cites: during the period 1948-52 sales of domestic instruments fell 62%, imports jumped 763%; foreign instruments of comparable quality cost about half as much.

The danger as Scheele sees it: if we allow our capacity to deteriorate and our artisans to languish, any future disruption of supplies due to war could impair our research, control and health activities.

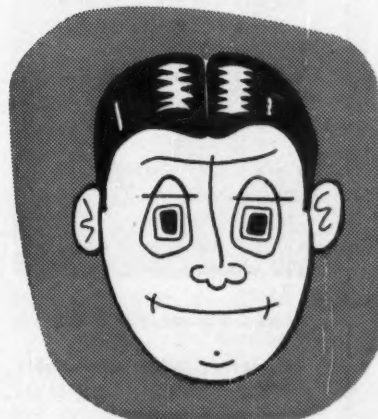
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To attract new industries, have a fistful of facts. That's the strategy Oklahoma's state planning and resources board is following in retaining Blaw-Knox's chemical plants division to survey potential plant locations and resources of salt, limestone, gas, cottonseed and other vegetable oils, coal and coke, and other chemicals. Blaw-Knox will tell the board which products could be manufactured advantageously, will provide process and location suggestions and market research estimates.

•

Steel companies are hedging their bets by going into plastic pipe. Last week Youngstown Sheet & Tube bought into Perrault Fibercast Corp. (Tulsa), will change its name to Fibercast Corp. and distribute its polyester-glass fiber products. Other steel firms, too, are eyeing their fledgling competitors, may join them instead of fighting them.

... The Editors



LUBRICATION

Head room gives opportunity for many profitable operations: the machine wave, cold wave, finger wave. But none can prove so remunerative as the brain wave. The sort of brain wave which—if you manufacture plastics, wire drawing compounds, pharmaceuticals, cosmetics, greases, and many other things—advises: "Specify Metasap Stearates in lubricant applications, and give yourself a head start on competition." For consider . . .

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and a Half?



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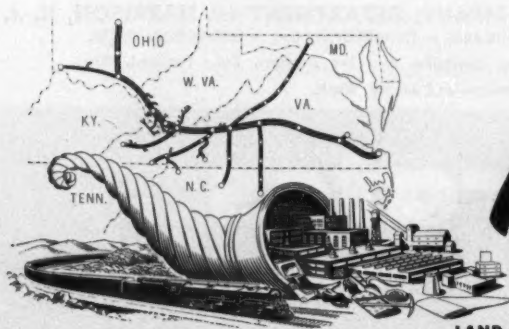
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BUSINESS & INDUSTRY . . .

Defenses on 'Dumping'

Opinions vary on how much the U.S. chemical industry is being hurt right now by the "dumping" of foreign chemical products into this country, but the industry is persuaded of one thing: it's likely to be hurt plenty if a bill that skidded through the House just before the recent recess becomes a law.

When the Jenkins bill came up before the Ways & Means Committee last May, chemical industry spokesmen testified that the general objectives of the bill were fine, but that its section 15 would be painful if not fatal.



OHIO'S JENKINS: For sake of efficiency, he'd subordinate protection.

The danger, it was said, lay in allowing import duties to be based on selling prices named by the foreign exporters. That bill, sponsored by Representative Thomas A. Jenkins, of Ohio, was replaced by the Customs Simplification Bill, passage of which was hailed as a victory for protectionism (see p. 53).

But Jenkins wasn't satisfied. Strongly believing that his party (GOP) has a mandate to rid government of inefficiency, and disturbed about the big backlog and slow handling of cases in U.S. Customs Court, Congressman Jenkins feels that the molasses-in-January situation in customs has been doing more harm to business than could be expected from

the change in valuation practice.

At present, the Customs Bureau is required to look up foreign selling price, as well as the price listed by the exporting company, and collect a customs fee on whichever price is higher. The new Jenkins bill that will go on to the Senate next January is aimed at saving time for both the Customs Bureau and the Customs Court.

With foreign chemical companies getting bigger, bolder and more covetous of U.S. dollars, it should be even easier this time to convince Congress that list-price valuation "makes it a simple matter for our foreign competition to ship chemical imports into this country at a landed cost with which we cannot compete."

A Trial for Toothpaste

Nearly two years are left before the expiration date of the chlorophyll patent that was issued to Temple University's Benjamin Gruskin on June 14, '38, and it appears this week that—however much they may not like it—the companies now producing and selling millions of dollars' worth of green-hued specialty items will have to keep on paying royalty under that patent right up to the final day.

Not that there won't be resistance. So far in its present lawsuit (*CW Newsletter*, Aug. 15), Colgate-Palmolive-Peet shows every intention of doing all it can to have that patent declared invalid. Citing chlorophyll literature dating back to the pre-World War I era,* Colgate insists that "no invention was required to devise and perfect the alleged improvements described and claimed [in U. S. Patent No. 2,120,667], in view of the state of the art existing prior to said alleged inventions."

Older and Tougher: But the Rystan Co., which owns the patent and does the licensing, withstood similar attacks last year and seems even more capable of self-defense this year. For one thing, Rystan partners O'Neill Ryan, Jr., and Henry T. Stanton, Sr., now can point back to their victory

in U. S. District Court in Dallas, in which the Gruskin patent was adjudged "good and valid in law" (*CW*, Mar. 29, '52).

This doubtlessly was a factor in the turn of the tide last summer, when Colgate withdrew its 1952 suit and signed a licensing agreement with Rystan. One month later, Bristol-Myers—another chlorophyll toothpaste maker—likewise dropped its suit against Rystan and entered into a retroactive licensing pact.

This year, history repeated itself as Colgate (on June 19) and Bristol-Myers (on July 23) again brought suit in U. S. District Court in New York, asking that the Gruskin patent be declared invalid. Rystan fought back by suing in U. S. District Court in Kansas City, Kan., for an injunction against Colgate, and by filing a counterclaim against Colgate in New York.

In a further retracing of historical steps, Bristol-Myers last week (Aug. 10) again shook hands with Rystan, and its second anti-Rystan lawsuit ended with a stipulation for dismissal.

Sole Disputant: This leaves Colgate as the one big adversary challenging the Gruskin patent. Stakes involved are indicated in Rystan's Kansas City petition, which states that under the licensing agreement signed on June 3, '52, Colgate has paid \$183,176.48 in royalty on toothpaste net sales of more than \$13 million, at the rate of 2% on the first \$5 million and 1% on net sales beyond that amount.

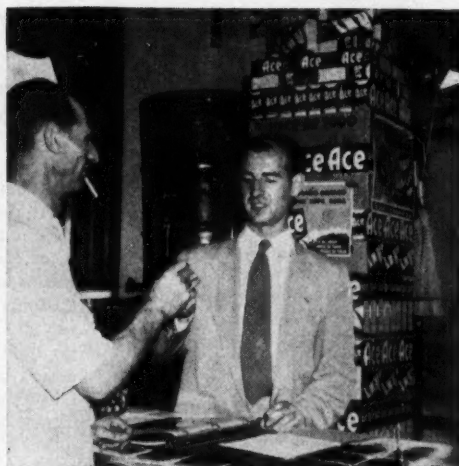
Colgate says that it intends to continue manufacture of chlorophyll toothpaste at its plant in Jersey City, N.J. If the New York and Kansas City judges hold with their Dallas colleague, Colgate will have to back up and resume those royalty payments; otherwise, the 12-year-old Rystan company will suddenly find itself cut back to its modest business of manufacturing a line of ethical drug products under the tradename Chloresium, and perhaps against fierce competition.

It means, too, that if courts don't make Colgate live up to its 1952 agreement, the chlorophyll field—dentifrices, at least—will be wide open to any and all comers—and possibly there'll be a new precedent on the vulnerability of chemical patents.

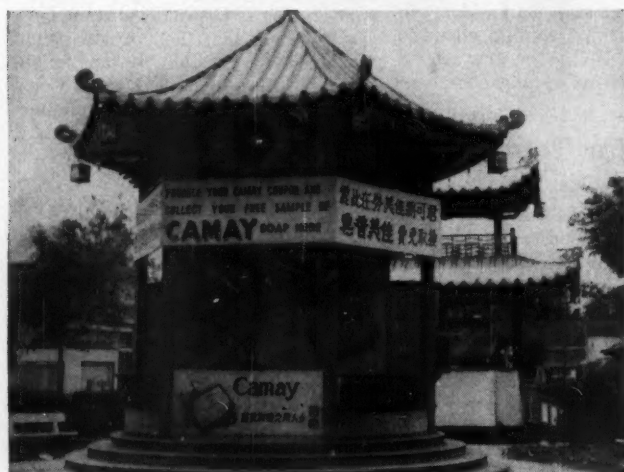
* O. Heller, "Seifenfabrikant," 1912, vol. 32, p. 825; F. M. Schertz, "Commercial Applications of Chlorophyll Derivatives," *Industrial & Engineering Chemistry*, 1927, vol. 19, p. 1152; G. Zickgraf, "Über die klinische Bedeutung von Chlorophyllpräparaten," *Archiv der Pharmazie*, 1931, vol. 269, p. 474; and others.



PHILIPPINE FESTIVAL: Villagers often ask for sound trucks to aid with festivities, show movies, supply entertainment.



VENEZUELA STORE: The package reads "Ace" . . . but it's still "Tide."



SINGAPORE SIGNPOST: In Singapore as in Sioux City, Camay is booked as "The Soap of Beautiful Women."



PHILIPPINE GOODWILL: P&G's Walter Lingle is greeted by Pres. Quirino.

Ingenuity: Sure-Fire Catalyst for Success

It's not unusual today to hear that a chemical process company is taking a header into foreign production. But when the company plunges deliberately into a market well infiltrated by competition, and drives its way ahead to carve out a sizable chunk of the market, it's news. That's the record Procter & Gamble has chalked up, and this week CW reviews some of the gimmicks it used to make its mark. Back in 1930 P&G was just barely dabbling in foreign production, had just one factory outside the States—and that was a near neighbor in Hamilton, Ont. Today its overseas operations boast nine plants in seven countries, more than 6,000 employees abroad, larger gross receipts annually

than P&G's entire business in 1930. Foreign business now amounts to about a fifth of the firm's total sales.

The expansion has moved like this:

- 1930: Controlling interest was obtained in Thomas Hedley & Co., Ltd., Newcastle-on-Tyne, England. Plant facilities were added in 1933, again in 1940.

- 1931: Sabates, S.A. Havana, Cuba, soap and candle manufacturers, was purchased; a detergent plant was added in 1951.

- 1935: Purchase of the Philippine Manufacturing Co., Manila, P.I., was effected.

- 1941: A soap and shortening plant at Surabaya, Indonesia, was put into operation.

- 1948: Organization of Procter & Gamble de Mexico and purchase of Aceitera y Mantequera Nacional S.A., Mexico City, allowed P&G to manufacture and sell in the Mexican market. New detergent units in Mexico City, Mexico, and Caracas, Venezuela, last year brought operation into full swing.

- 1953: Processing of synthetic detergents was inaugurated in Peru by the Procter & Gamble Commercial Co.

As the network has grown, P&G's financial rewards have become increasingly important in company financial statements. The trick has been to keep the ball rolling, to break into foreign market areas where in most cases the Colgate and Lever com-



BLISSFUL KOREAN: Even in war-torn Korea, familiar packages can be found . . . brings visions of cleanliness to a Pusan stalwart.

panies have long been entrenched.

Ace-in-hole for P&G has oft been synthetic detergents; when it has jumped into a well-marketed area, it has vended a "completely new type of product"—has thus cut down its initial competitive disadvantages. Noting that its detergent Tide vaulted to a commanding sales lead in the U.S. following its introduction in the post-war period, P&G has used its new products in this rapidly growing field to hack out a foothold in overseas areas. Proof of the soundness of its reasoning: Tide today in England has a dominant position in the soap-detergent picture.

Then There's Sensibility: Probably the greatest single asset to any company anywhere in peddling its products is a deft blend of sound market research techniques and a sensitivity

to prevailing conditions. In foreign operations, it's vital to success.

P&G has tried consciously to vary its procedures with local conditions—and in the process has learned lots about other peoples' problems throughout the world. Among its findings:

- Half-abashed, P&G spokesmen admit they jumped to an unwarranted conclusion in invading the South American shampoo market: they assumed that Latin-American scalps and hair would be oilier than North Americans', hiked the washing power of Drene higher than that of the product sold in the States. But an expert went down to follow up, found the guess was completely unfounded; Cuban heads are no oilier than Americans'.

- In England, Drene set off an-

other hunt. Users there complained to P&G that its product was not always clear, crystals were often found in it. Company investigators verified the claim but noted that, strangely enough, bottles still on store shelves didn't have a trace of the crystals. Researchers took up the challenge, found that one of the ingredients crystallized when Drene was subjected to below freezing temperatures. Carrying out its search, P&G installed maximum-minimum thermometers in British bathrooms, found to its horror that the temperature dropped below 40° in about a third of the bathrooms tested. Result: Drene's formula was changed.

- England also presented another mystery to P&G America-acclimated officials. The company was considering a toothpaste with a wintergreen flavor, put it into test-market operation. But samples distributed to Brits were turned down flat. Reason: In England, wintergreen is used only as a liniment; it's a flavor Englishmen abhor.

- In the Philippines, it was the problem of the fading wrappers, P&G couldn't find anything basically wrong in the dyes that spelled out Camay, eventually discovered that the trouble was that most Island storekeepers displayed their merchandise on the street, where it received a double exposure to both Philippine sun and the prevailing conditions of humidity. Only after laboratory torture-chamber tests could researchers back in Cincinnati duplicate the effect; then a completely bleach-proof dye was devised, is used in all Camay products sold in the Philippines.

- But once in a while, through the years, it's been a case of man bites dog. Instead of P&G's changing its formula, foreign customs have adjusted to fit the new product. This happened recently in Cuba. Until the introduction of Ace (pronounced ah-say), the Cuban version of Tide, many housewives washed their dishes under a faucet, vigorously rubbing them with a piece of hemp. When Ace appeared, with typical fanfare, the picture changed; many former rope-using Cubans joined in a stampede to the local hardware store—to buy dishpans.

Advertising, Too: Customs of various countries entered by P&G have affected advertising techniques, too, to a large extent. In Mexico and the Philippines, for example, sound trucks make the round of small hamlets, provide musical entertainment, show motion pictures. In England, it's a battle waged on the competitive ground of

giant outdoor signs and commercials beamed in from Luxemburg (since commercial radio is not available in England).

Canada's bilinguality has necessitated P&G's printing two sets of washing instructions on every package of Tide, Cheer, Dreft, Ivory Soap, Duz, etc. Radio commercials are also given in both French and English.

The Philippines have presented a special problem in recent years. During the liberation of Manila, P&G plants (which were doing a thriving business and exporting such products as Purico, Mariposa, Dragon Oil, etc., to Japan, China and Indonesia) were almost completely destroyed. Reconstruction began in 1946; one year later products were again rolling off the lines. But when it came to market researching for new products to broaden the range, company officials found that their interviewing teams faced a rough hurdle—Philippine housewives speak 10 or so different dialects. But P&G found the necessary polylinguists, and today even Camay soap is manufactured in the Islands for local consumption.

Indonesia was a similar headache owing to war conditions. The Jap-

anese turned P&G's factory at Surabaya from margarine manufacture to glucose production, eventually completely turned it over to war production. Fortunately, employees still working at the plant during the period of Japanese control were able to conceal valuable equipment, made reconversion possible almost immediately after liberation. By Nov. '45, edible products were again being produced.

One of P&G's latest projects—a synthetic detergent plant at Caracas, Venezuela, looks like a budding goldmine. Incorporated in 1950, the Venezuelan organization is the newest manufacturing operation of P&G's Overseas Div., sparked by Vice-President Walter L. Lingle, Jr., but it's sure not to be the last. Pleased by "the progress we've made," company officials confidently predict even greater strides ahead.

COMPANIES

Pennsylvania Salt's new \$8-million electrolytic chlorine and caustic soda plant, Calvert City, is now in production, expects to be up to maximum capacity soon.

Largest single expansion project

undertaken by Pennsalt, the plant is part of a \$12-million program which also includes synthetic ammonia works at Wyandotte, Mich. Financing the construction: issuance of new common stock in May, 1952, together with company reserves.

Pittsburgh Coke & Chemical Co., Pittsburgh, Pa., has changed the name of its agricultural division to Agricultural Chemical Div., Pittsburgh Coke & Chemical Co.

Latest tax write-offs issued from Washington include a number of chemical companies:

- **Hercules Powder Co.**, Hopewell, Va.; \$251,080 at 65% for special chemicals for military use.

- **Dow Chemical Co.**, Midland, Mich.; \$950,000 at 75% for bisphenol-A.

- **Rohm & Haas Co.**, Deer Park, Tex.; \$1,284,641 at 45% for ammonium sulfate.

- **Hyland Laboratories**, Los Angeles, Calif.; \$125,635 at 75%, \$637,000 at 50% for blood derivatives and gamma globulin.

- **Anchorage Oxygen Co.**, Anchorage, Alaska; \$309,034 at 50% for high-purity oxygen and acetylene.

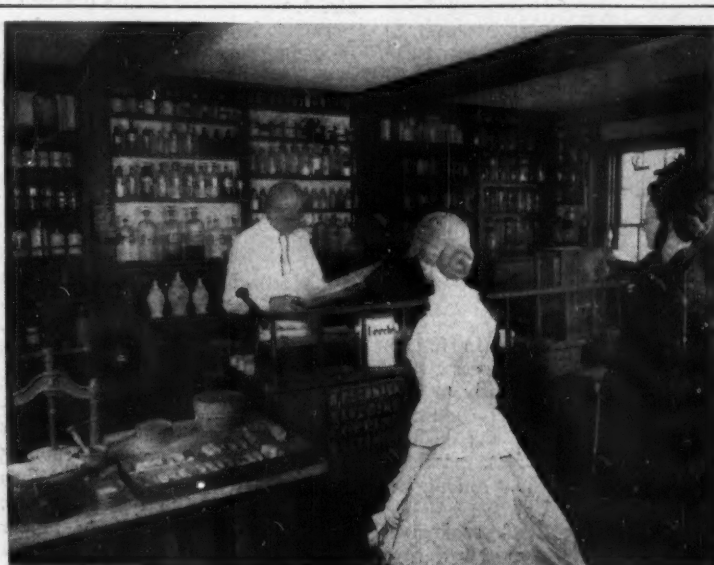
EXPANSION

Ammonia: Columbia-Southern Chemical Corp. (a wholly owned subsidiary of Pittsburgh Plate Glass Co.), will enter the ammonia production field, plans to build its first producing facility at Natrium, W. Va., soon. Construction contracts will be out shortly; production is slated for late 1954.

The company plans to use its by-product hydrogen from nearby chlorine-caustic units in the ammonia processing, hopes to find ready markets for its new product in agricultural West Virginia areas.

Antifreeze: Stratosphere Products Corp., Los Angeles, has started production at its new antifreeze manufacturing plant at Salt Lake City, Utah. Plans are under consideration to also produce fluorine-based chemicals and possibly ammonia.

Chlorine: Construction is due to start on Hercules Powder Co.'s chlorine recovery plant at Brunswick, Ga. (CW, Jan. 19, '52). It has been delayed owing to unavailability of certain building materials. Chlorine will be recovered from hydrochloric acid, obtained as a by-product in the manufacture of toxaphene, the agricultural insecticide turned out by Hercules.



Did Washington Buy Here?

IN A GESTURE designed to gladden American pharmacists, Smith, Kline & French last week presented a storied apothecary shop to Mystic Seaport, Conn. Occasion for the presentation: the Marine Historical Assn., Inc.'s 24th annual

meeting, attended by more than 4,000 members from 40 states. The shop is believed to be one of the first in North America, was originally opened in Wilmington, Del., in 1793, during Washington's second term in office.

U.S.I. CHEMICAL NEWS

August 22

★

A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries

★

1953

ATTENTION

Users of Taxfree and Specially Denatured Alcohol

New is the time for users of specially denatured alcohol to renew their basic permit (Treasury Department Form 1479) for 1954. It is also time for users of Taxfree alcohol to complete and file with the Assistant District Commissioner — Alcohol and Tobacco Tax Unit — their application (Form 1450) for renewal of their Taxfree Alcohol permit for 1954. If you require forms or any assistance in their preparation, please call your nearest U.S.I. office.

New Skylight Panels Let Winter Light In, Keep Summer Sun Out

An unusual way of automatically varying transmitted solar light and heat with the season of the year has been revealed in a new glass panel for flat skylights. Each panel unit is a hermetically sealed hollow glass box, evacuated for insulating purposes. Prisms on the inside of the top glass govern the amount of daylight and solar heat transmitted, depending on the position of the sun. The bottom piece has an uneven surface to diffuse the entering light and distribute it evenly to the area below. Between is a sheet of plastic material to soften the light and augment the vacuum insulation.

When installed so that the panels are oriented within 30 degrees of the geographic north-south axis, the skylight transmits light from the north half of the sky and from the lower part of the southern sky — which is desirable in winter when the sun is low. Prism design on the underside of the top glass is such that a large part of direct sunlight coming from the higher southern sector (where the bright summer sun is) is reflected. Thus, as the sun's elevation changes with the seasons, light entry is controlled automatically, with much of the brightness and heat eliminated during summer months, it is said.

Bulletin on Zinc Dust

A bulletin describing various applications of zinc dust was issued recently. The publication gives details on the use of zinc dust in the manufacture of paints and bleaches, as a reducing agent, catalyst, purifier, precipitating agent, and as an additive to grease and other materials for pipe thread lubrication.

Zinc dust is said to be a natural enemy of rust and to be highly effective on iron and steel in salt atmospheres and where the painted surface is in contact with brine. Special zinc dust paints can be made to provide unusual durability when used on flue boxes, steam condensers, and other industrial equipment subject to high temperatures.

Methionine Ups Feed Efficiency; Helps Poultry Feathering, Growth

New Laboratory and Field Research Confirms Improvements
Obtained by Adding Methionine to Broiler and Turkey
Starter Feeds; Benefits Pronounced in Hot Weather

As a result of U.S.I.'s pioneering research, the world has seen methionine transformed in the short space of seven years from a chemical rarity to a practical commodity which is used in tonnage quantities. Until U.S.I. developed its commercial method of synthesis in 1946, methionine was a scarce organic

chemical selling for several hundred dollars per pound. When it became available in quantity, the pharmaceutical industry soon uncovered many new therapeutic uses, and its success in this field spurred the use of methionine in other applications.

One of these has been in the manufactured feed industry. Methionine has long been known as an essential sulfur amino acid, necessary for the growth and repair of animal tissue. A great amount of experimental work has been carried out to demonstrate that methionine improves feed efficiency and growth. Its addition as a supplement to animal feeds has been found to be profitable and practical. As a result, methionine is now used by feed manufacturers in every section of the country.

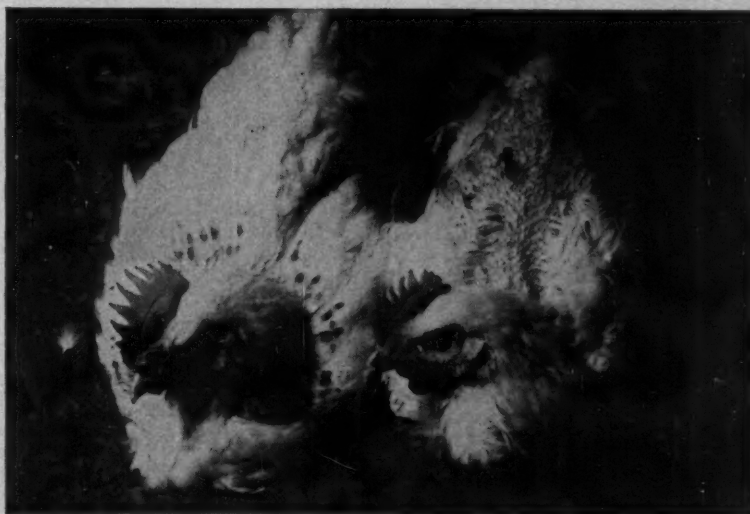
Poultry Among Chief Benefactors

Poultry are among those farm animals that benefit most from additions of methionine to their feed. Recent poultry research reported from a leading university gives added confirmation to the fact that methionine can increase profits in several ways. This

MORE

'3-D' Models of Crystals Easily Built with New Kit

A simple and effective means for visualizing how atoms, molecules, or ions pack together to form various crystalline structures is now available in a new demonstration model kit. Portable and easy to use, the kit consists of a series of transparent plates containing regularly spaced holes into which black or white spheres are placed to represent units within the crystal. Spaces and supporting rods separate the plates and hold the structure rigid. By arrangement of alternate layers and the use of different length spacers, any of the fourteen possible space lattices in the six crystallographic systems can be shown clearly in three dimensional form. Once put together, the crystal model has a slightly exploded appearance, showing the relation of the cleavage and glide planes to the lattice structure, the manufacturer points out.



Feathering can be greatly improved by the addition of methionine to the broiler ration, as this photograph from Broiler Growing shows. The bird on the left came from a group fed one pound of methionine per ton of feed. The bird on the right received no methionine.

August 22

★

U.S.I. CHEMICAL NEWS

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1953

CONTINUED

Methionine

work also reveals that methionine can be used to overcome poor feathering—a common hot weather problem encountered by many poultry growers.

On the basis of several years of tests involving more than 10,000 chicks, it is estimated that from one-half to one pound of methionine, added to each ton of feed, yields the broiler producer from 15 to 30 pounds of additional broilers per ton of feed used. This estimate takes into account the improvement in feed efficiency alone. Additional benefits in increased growth—larger birds in a shorter time—are also obtained.

Methionine Improves Feathering

Definite improvements in feathering were noted as a result of feeding methionine. In one test under field conditions, feather score was improved approximately 25 per cent during hot summer months in birds receiving methionine at the rate of one pound per ton of feed. In other tests under experimental conditions, it was noted that birds not fed methionine were almost completely barebacked. The addition of one pound of methionine per ton of feed produced normal feathering.

Similar Results Obtained in Turkeys

Extensive experiments in adding methionine to turkey starter feeds gave equally beneficial results. Under practical conditions, the addition of one pound of feed grade methionine to each ton of turkey feed, with and without antibiotics, produce a sizeable increase in growth. It is emphasized in the report of this work that the all-vegetable test ration was fortified with the known vitamins and minerals, and that prior to the addition of methionine, the ration already contained "adequate" methionine on a calculated basis.

It is also interesting to note that the growth response obtained by adding methionine to the ration was greatest during hot weather. This makes it possible to assume that free methionine assists the birds in some way to overcome the stresses and strains brought on by hot weather and other factors.

New Reagent Simplifies Moisture Determinations

A new reagent for detecting and measuring traces of water in various substances was recently announced by a chemical firm. The reagent is applicable for anhydrous solvents, paint thinners, dry-cleaning solvents, plasticizers, higher alcohols, gasoline, petroleum oils and greases, and vegetable oils, fats, and waxes.

No heating is required in the procedure. The reagent is simply added dropwise to a given quantity of sample until a blue-green end point is reached. Using the dropper furnished with the reagent, each drop is equivalent to 0.2 mg. of water.

The same procedure can be used to determine quickly traces of water in organic solids which cannot be heated, provided the solids are soluble in butyl alcohol. The test can also be adapted to other products such as powdered inorganic materials, textiles, and fibers, according to the company. The product is said to be useful for plant and field testing, as well as for laboratory testing.

Rhodium Vacuum Coating Offered as New Service

Vacuum-coating of rhodium on conductive and non-conductive materials is now available as a commercial service to technical laboratories and industrial organizations, according to a recent announcement. Rhodium is said to have a high resistance to chemical attack and because of its high reflectivity, is excellent for mirrors and reflecting surfaces which must withstand corrosive atmospheres. When deposited on glass and subjected to baking, rhodium coatings become extremely hard and are ideal for making thin, hard surfaces to resist wear and friction, it is said. Materials coated thus far include microscope slides, mirrors for optical apparatus, reflectors for telescopes, gauges, and glass bearing surfaces.

TECHNICAL DEVELOPMENTS

Information about manufacturers of these items may be obtained by writing U. S. I.

A new plastic bearing material is said to require no lubrication, to contain no oil, graphite, or other sealed-in lubricant, to be extremely resistant to chemical corrosion, and to be able to withstand temperatures ranging from —100 to over 400° F. (No. 950)

A new solvent-resistant coating for paper, leather, rubber, etc., is described as a specially plasticized, room-temperature curing phenolic resin which yields a flexible, non-tacky, glossy film. (No. 951)

To prevent mercury poisoning through skin absorption, a protective cream is available which is said to contain a mercury decontaminant. Cream is claimed to offer protection against coal tar derivatives, dilute acids and alkalis as well. (No. 952)

A new protective chemical for aluminum, applied by brushing or dipping, reportedly forms an amorphous mixed metallic oxide coating that provides unusually high corrosion resistance and forms an excellent paint bond. (No. 953)

Large, heavy-duty paint rollers, fitted with extra-long handles, are claimed to eliminate ladders and scaffolds from industrial painting, and to handle oil, water, or rubber-base paints on all types of surfaces. (No. 954)

Warning labels which can be applied without moistening to glass, metal, wood, plastic, or ceramic containers, are printed on strong, durable cotton cloth coated with silicone, and are available in 36 different wordings, according to the manufacturer. (No. 955)

A new chemical-resistant gasket material consists of strips of foamed silicone rubber wrapped in sheets of tetrafluoroethylene resin and is claimed to be effective in chemical and pharmaceutical applications over a wide temperature range. (No. 956)

A novel new shaving brush fits the end of any standard size tube of shaving cream, dispenses lather directly through the bristles of the brush. (No. 957)

To prevent corrosion in steam condensate systems, a new compound, fed to the boiler in small amounts, vaporizes, depositing a non-wettable protective film in return lines, it is said. (No. 958)

A 'spray-can' water repellent for cloth is claimed to repel water without retarding air circulation, to improve wear and wrinkle and crease resistance, and to be suitable for clothing, sails, car tops, awnings, etc. (No. 959)

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Dibutyl Phthalate
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BRANCHES IN ALL PRINCIPAL CITIES

Confident . . . But Still Concerned

Buoyed up by soaring sales figures and vacation optimism, chemical executives are exuding confidence this week. Beaming from behind six-month earnings charts, reflecting in many cases all-time records, most executives from coast-to-coast say business is so good their problems have been largely overshadowed. And to frost the cake, the road ahead for the next six months looks as bright or even brighter.

What issues exist, say many, amount to a three-pronged question—that of building up facilities fast enough to keep up with demand, to sell what's available in certain other lines, to keep one jump ahead of the competition on new products. None is unique; all are intrinsic to a rapidly expanding industry.

But optimistic as the over-all picture seems to be, some troubles have cropped up recently, show up in CW's latest executive roundup as common (but not necessarily general) concerns. Included:

"Competition is getting worse; but you can't see how badly it's hitting, as yet . . ."

- The ever-nagging worry over bristling competition is growing in some sectors of the industry. One executive in the fats and oils business says it's not as bad as in the first six months of 1952, "but it's bad." Further, he doesn't expect much change in the near future, since although "the price of coconut oil has gone up a little, the price of copra is up, too . . . so things aren't as good as they look."

Another president bluntly says "competition is rough all up and down the line. There's an abundance of almost everything, and the situation won't change, barring another war." A third looks with considerable doubt upon prospects next year, thinks there's no significant change between now and the last two quarters but predicts that the chemical industry will feel the backlash in '54 from a softening in the automotive and appliance industries "which don't look healthy."

Companies turning out agricultural chemicals claim they're finding the going especially rough. "Pesticides are now in free supply," mourns one vice-president; "and most foreign nations are no longer in any position to buy

our over-supplies. Brazil is out; and the slow-down in Greece, Turkey and Egypt have added to the burden." The government's move to buy chemicals to fight malaria on a world-wide scale has helped some, but it hasn't offset other losses.

"The truce in Korea won't immediately affect chemical production."

- Nobody, in top ranks in the industry, appears to think cessation of hostilities in Korea will cause drastic cutbacks in chemical production. The reason: though truce rumors normally lower quotas, there have been so many false hopes for peace in the recent past, people tend more and more to discount even official-sounding promises.

A few are more conservative, feel that the present demands of the government will hold for at least another six months, then may tend to level off and present headaches.

- The labor picture is likewise a shadowy worry today, is causing only minor gray hairs right now. On the West Coast: "The coast is clear. The only thing that should come up next year is wages, and we're prepared to take care of that." In Chicago: "Labor doesn't show any signs of giving trouble, but it's not exactly what you'd call quiet. Patterns of the basic industries (like the automotive, rubber, oil industries) will continue to set the pattern from a labor standpoint for the chemical industries; "when they start to rumble hard we prepare to man our defenses."

- Tariffs are another potential worry. Mostly, executives are considering the possibility that "unfair competition may result if Washington's yen for dollars gets the upper hand . . . some of us may take the short end of the stick." Another board chairman gets more basic in his complaint: "The biggest inequality we find rises out of the fact that we have to sink considerable cash into educating customers in the use of highly technical products in the chemical industry today. Then foreign producers come into the field and get a free ride on our coattails. The only way to handle the situation is to load tariffs on 'em."

A majority state they'd back some general reduction in tariff barriers, but think the situation will have to be controlled with an iron hand. "An over-all reduction would hurt us;

everyone I know favors trade, not aid, for the other fellow, but when the point strikes home, he's more reluctant to go out on a limb." As for Canada's unofficial threat to raise tariffs if the U.S. doesn't come around, executives are prone to be more understanding. "I think it might be a good idea if Canada went through with it," opines one Eastern president; then if the move snow-balled the U.S. would learn in a hurry it can't have the chemical industry on a one-way street, and it would shake a lot of unhealthy complacency."

"Everybody's moving on the assumption that excess profits tax will die a natural death."

- Excess profits taxes are a transient worry at best, most executives agree. The only concern widely mentioned is that perhaps we may find that it's led to widespread sloppy business practices and has accustomed companies to wholesale spending to work themselves out of high tax brackets. "Such habits are hard to break; and ultimately it's the consumer who bears the brunt." On the credit side: "The anticipated end of excess profits tax is causing all of us to scan our expense sheets carefully—to make sure that none of them overlap into next year, and that all the bills for the current year are paid up on time."

Smaller companies are apt to voice the loudest gripes. Says one: "We're a small outfit, built up during the lush years on a low base. So there's a sharp limit on the amount of money we can net . . . and we're held down to a slow rate of expansion to boot. Our out: trying to sink money into items that will pile up profits for us when excess profits tax is lifted." From another: "It's beginning more and more to look like a perennial evil; and I can't think that the government will pass up this source of revenue for nothing . . . at least a substitute measure."

- That fast tax write-offs have lost their meaning is a vocal point of contention in some quarters. An oft-mentioned alternate suggestion: "If, instead of the accelerated amortization deal, the fellows down in Washington would let us determine our own rate of amortization and write-offs depending upon our more intimate knowledge of obsolescence factors, the chemical industry would be better off." Or: "The way it's working now,

it's pot luck . . . depends upon when you make your application, and conditions may change overn'ght."

"Kicking prices of basic raw materials up last month was a hard body punch."

• Rising costs of both materials and labor is apparently a common "cause for speculation." States one specialties company: "Rising prices clear across the board are squeezing

us right now. We can't hike our own prices because the competition hasn't; but before long we'll all have to."

• As far as technically trained personnel is concerned, the situation is much the same as it was last spring. Regionally, there are shortages; but if companies are willing to pay for top-drawer help, they can find it—within time. Complaints are sporadic; but still audible.

Typical of the serenity that prevails today: "I still think the chemical industry is heading for bigger and

greener pastures," avers one midwest president. "We're just beginning to assume our rightful leadership as an industry, and our problems are really only rightful growing pains." And again: "The reason I'm so sure we can lick anything that comes along, is the fact that we've had some background under our belts now. Look what we've muddled through in the last 30-40 years—without much basic information; what we know now will make for problems, but not full-blown worries."

Republican Checklist—First Six Months

With most congressmen home to mend political fences, administrative Washington was taking a long hard look at what has been accomplished during the past six months.

By and large, the record of both Eisenhower and the Republican Congress was friendly to chemicals and to business in general. But it is clear that the so-called "businessman's administration" is not automatically going along with all the things businessmen want—or even many of the things that businessmen want most. An example: excess profits tax extension.

Many of the administration's hottest problems—foreign trade, social security, taxation, farm policy, to name a few—were either straddled, compromised or postponed, and thus will be coming up again next session. Many of these were purposely delayed so that various appointed commissions and committees could study the problems and come up with recommendations to guide the administration in making decisions.

Most of the firm actions came from Congress; the commissions' turn will come later. Here's what Congress has accomplished:

Rubber Plant Sales

A three-man commission was created to advertise for bids and negotiate sale of government's synthetic rubber production facilities. Arrangements must be complete by Jan. '55; Congress has 30 days to veto any sale; other bidders would have opportunity to withdraw in such case.

Customs Simplification

New law makes only minor changes in regulations. Defeated: most controversial provision to permit fixing import duty not on selling price in foreign markets but on export price to U.S. Coal-tar import pricing is not changed.

Reciprocal Trade

One-year extension, but membership and authority of Tariff Commission was changed to strengthen hand of protectionists, not free traders.

Bureau of Standards

Congress was largely responsible for opening discussion of integrity of NBS's findings. Won't step in again on wide policy until investigating scientists (*below*) report. Several defense functions of NBS transferred to Defense Dept.

Defense Renegotiation

House extended renegotiation law for year from Dec. 31, '53 expiration. Most likely Senate will do so next session, making extension retroactive to cover all of 1954.

Basic Research

New law lifts \$15-million ceiling on appropriations to National Science Foundation, though Congress has never given NSF anything like the ceiling. The history of this law shows clear intent of Congress to centralize federal funds and policy-making on basic research in the NSF.

Reorganization

Defense Dept. gets new assistant secretary to manage research and development by all three services. Agriculture gets assistant secretary for research.

Alien Property Disposal

Bills to allow sale of companies such as General Aniline & Film before outstanding lawsuits are settled did not come up for general House or Senate debate. Administration favors bills, but constitutional and other questions are obstacles to final approval in 1954.

Controls

All price and wage controls killed. Controls on materials needed by military and Atomic Energy Commission continued on items in short supply.

Synthetic Fuels

Cutback in appropriations to Bureau of Mines kills chances for government construction of commercial-size plants to produce gasoline from coal via hydrogenation.

Corporate Taxes

Though he got excess profits tax extended through December, Eisenhower will have a hard time getting present (52%) corporate tax extended past Apr. 1, '54, expiration date.

Pesticide Control

Opposition that developed at end of session killed Miller bill (H.R. 4277), which would have regulated pesticide use on food products. Chances of passage are poor next year, too.

Food Chemicals

The Delaney bills, designed to give the Food & Drug Administration much greater power over use of chemicals in food and cosmetics, were held over. Chances for passage next year seem slim.

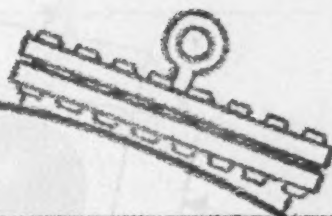
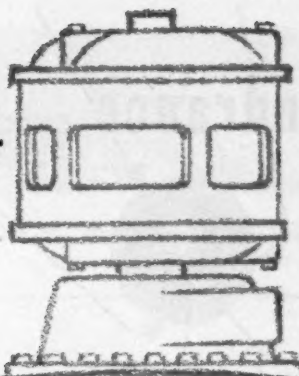
Food Standards

Congress approved a speed-up in setting noncontroversial food standards. FDA can publish tentative standards in the Federal Register, and, if no opposition is heard, can make them final without hearings.

Sleeping Pills

House amendments to other food and drug legislation virtually killed federal enforcement of Durham-Hum-

Look what's afoot with PLIOVIC



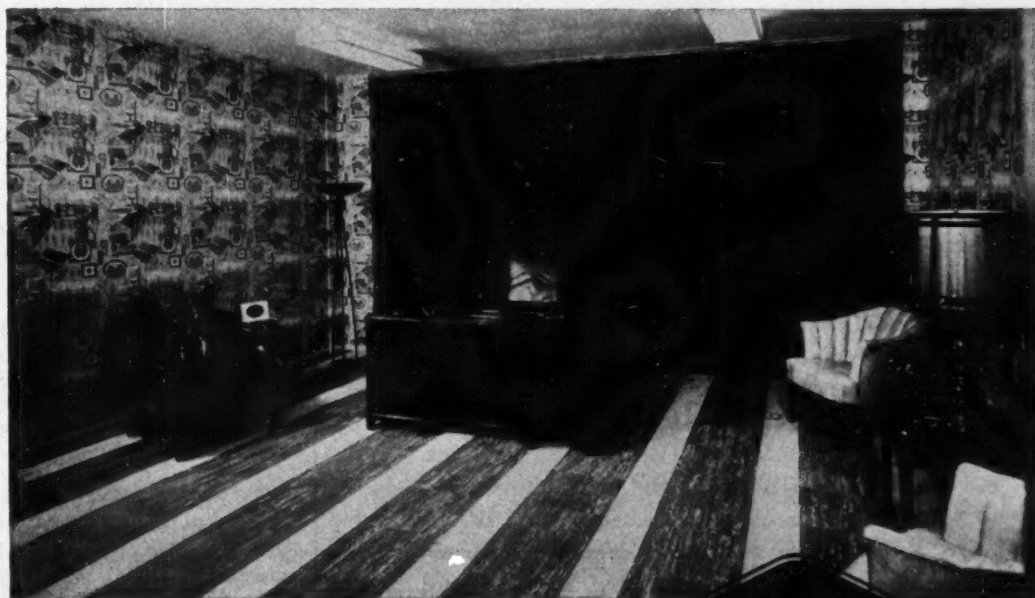
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METAL HYDRIDES

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B & I

phrey bill banning nonprescription sale of sleeping pills and other dangerous drugs.

Factory Inspection

FDA's authority to inspect processing plants—restricted by a Supreme Court decision—was redelineated by Congress.

Atomic Energy Law

A law permitting private development of atomic power is expected by next summer.

These commissions were set up by the administration and by Congress to study and report on these problems:

Reorganization

New Hoover Commission has authority to recommend elimination of federal functions and programs. The first Hoover group could only reshuffle agencies.

Synthetic Rubber

Three-man commission authorized to handle disposal of government rubber facilities (see above).

Trade and Tariffs

Seventeen-man commission will survey U.S. economic relationships with the rest of the world, will make recommendations on how much foreign investment, how much "trade, not aid" this country should provide.

Natural Resources

Resources for the Future, Ford-sponsored group, has government cooperation in drawing up recommendations for a federal program to prevent resources waste. It will follow up the Paley Report.

Federal-State Relations

Commission is surveying duplication and overlapping of federal and state legislation, taxation, regulation. Object: to clarify and define who should do what.

Taxes and Depreciation

House Ways & Means Committee is continuing work on a complete overhaul of present tax structure.

Bureau of Standards

Eight-man committee from National Academy of Sciences is checking integrity of National Bureau of Standards' tests on battery additives.



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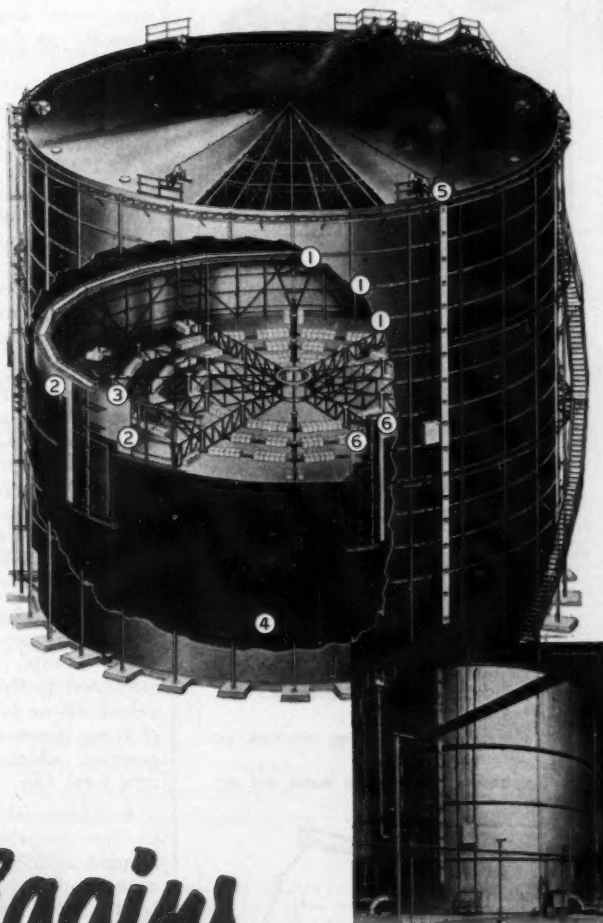
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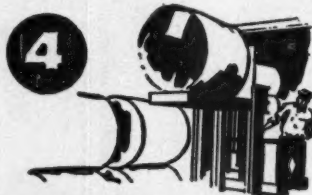
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LABOR

Chemical Hiring Up: Chemicals led the parade this summer as U.S. manufacturing industries stepped up their hiring rates in their annual recruitment of June graduates and of temporary employees for vacation replacements. Biggest relative increase in signing up new employees in June, according to latest reports of the Bureau of Labor Statistics, was the 95% rise in chemical hiring. This compares with a 24% boost in taking on new workers in all manufacturing industries. While chemical hiring jumped from 1.9 to 3.7 persons per 100 employees between May and June, the number of chemical employees leaving their jobs—including those who quit, were fired, or were laid off—moved up slightly from 2.0 to 2.1 per 100.

More Internal Revenue: Chemical wage increases this week range from 2 to 12¢/hour.

• The 83-man Local 68 of the United Gas, Coke & Chemical Workers (CIO) struck for 36 days, got a 10¢ boost in a new one-year contract with Royster Guano Co. at Toledo, O. The new pay range is \$1.47 to \$1.88/hour, retroactive to June 1.

• Continuing its march from the petroleum industry into the chemical industry, Celanese Corp.'s Chemcel plant near Kingsville, Tex. has granted a 4% wage hike to approximately 500 employees, including salaried employees subject to overtime regulations. An additional 4¢ rise will go to workers in the operator classifications.

• Latest quarterly adjustment for hourly paid employees at Shawinigan Resins Corp., Springfield, Mass., amounted to 2¢/hour under the escalator clause in their contract. Cost-of-living increases under the present contract, which runs to next May, now total 13¢.

• "Congenial" negotiations leading to "an amicable settlement" have brought a flat 3% wage increase to Ansco employees at Binghamton, N.Y. Local 306, International Chemical Workers Union (AFL), estimates this will mean an average boost of about 5¢/hour. Last previous general wage increase at this plant was 6¢ in 1951.

• Midway through their current two-year contract, officials of Inter-mountain Chemical Co. and District 50, UMW, have agreed on a wage increase announced as "slightly more than 12¢/hour" for employees at the trona plant and mine near Green River, Wyo.

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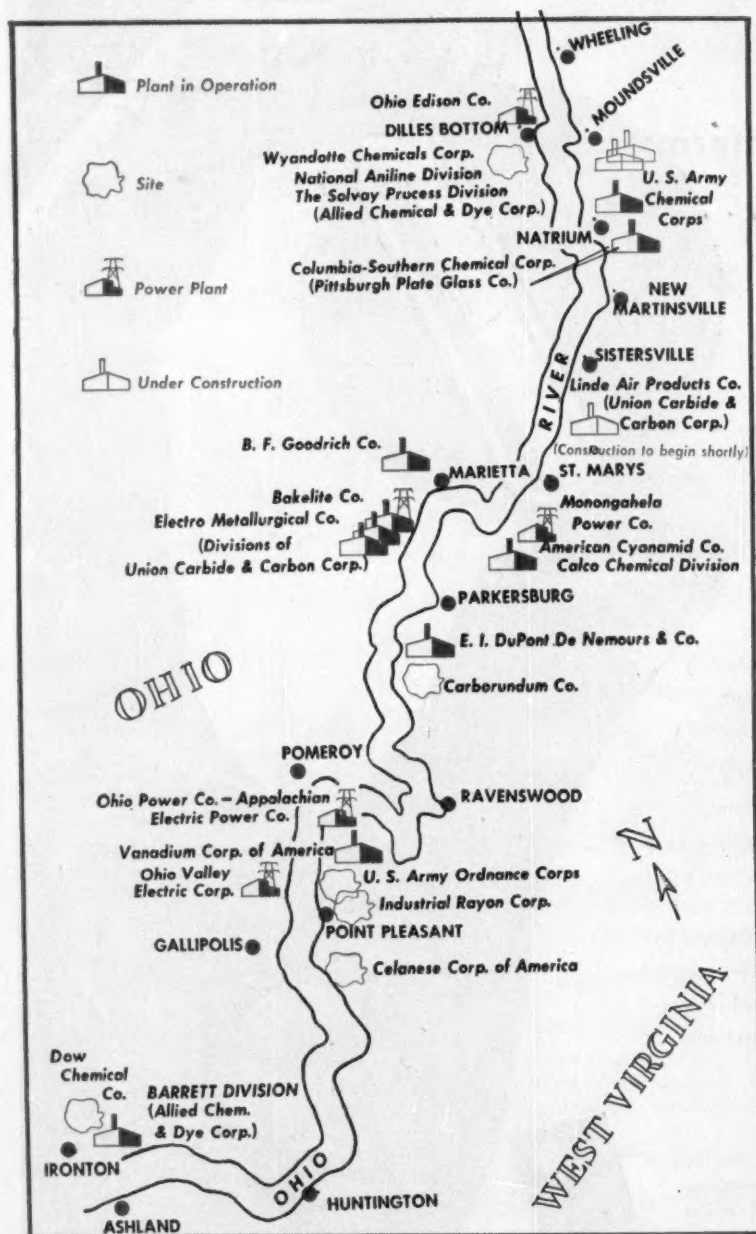
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Upper Ohio Resurgence

From Moundsville, W. Va., to Ironton, O., chemical firms are breaking ground, building new plants and expanding old ones.

Reasons for this surge in the valley: proximity of raw materials and markets; good labor supply; good transportation; plenty of water, electric power and fuel.

Anyone discussing the chemical resurgence of the Ohio River Valley can find plenty to talk about:

- Near Moundsville*, two divi-

sions of Allied Chemical & Dye are putting up four plants: a \$15-million chlorine plant (see cover); chlorinated methane products plant costing over

\$2 million; a \$3.2-million aniline and nitrobenzene plant; and a \$4.5-million maleic anhydride, fumaric acid installation. The first two are Solvay's; the latter, National Aniline's.

- At Natrium, W. Va., the U.S. Army Chemical Corps World War II hexachloroethane (smoke bomb component) plant, leased to Glyco Products until late last year, is being rehabilitated at a cost of about \$1 million, and a unit to produce super tropical bleach is being built on the property.

- Also at Natrium, Columbia-Southern Chemical will build an ammonia plant, using by-product hydrogen from its chlorine-caustic plant. This marks the company's entry into this field.

- At Long Reach, W. Va., Linde Air Products will soon be breaking ground for a \$13-million silicones plant (see p. 53).

- Near Marietta, O., Bakelite is developing the site on which its phenol plant is located to accommodate a nine-unit plastics materials plant. The first, a polystyrene unit (tax write-off, 45% on \$6,322,000), should be completed by mid-1954.

Anyone using the term "resurgence," however, will also find plenty of people who'll argue with him. They contend that the valley has just kept on growing chemically since the first company, Columbia-Southern†, moved in back in 1943.

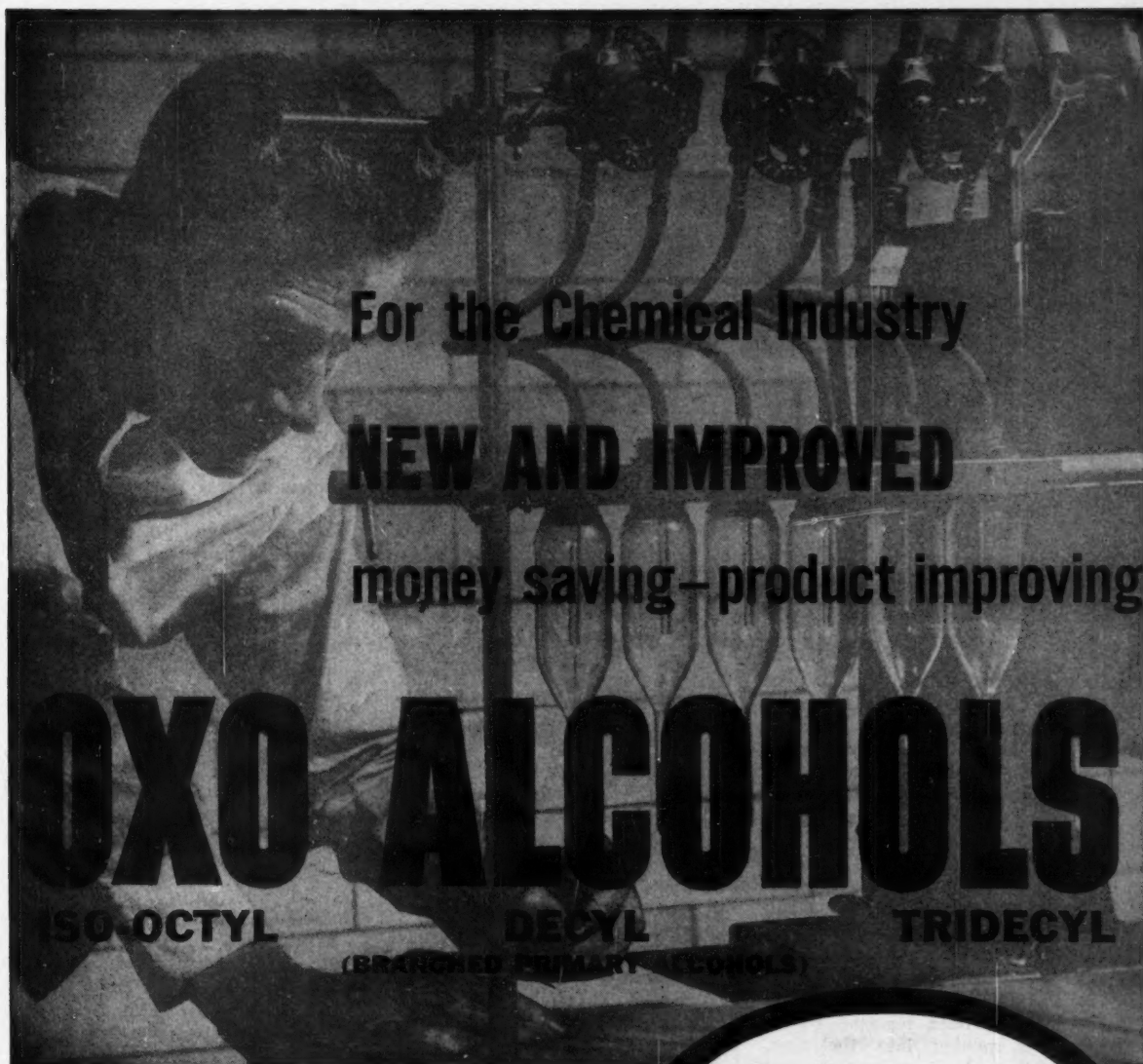
But call it a continued or a second spurt, the chemical industry is expanding at a rapid rate in that section, and for good reason.

Salt and Water: In locating a chlorine plant, naturally, brine is a *sine qua non*; the rock salt beds in the area lured Columbia-Southern, and now Allied. The river itself is, of course, a big factor—for barge transportation and for effluent disposal, which is regulated by state laws. In addition to the river, the area is also served by rail (principally the Baltimore & Ohio) and highways. (There are no railroad facilities, however, on the Ohio side of the river between Marietta and Krebs Run—opposite Moundsville.)

Hand-in-hand with transportation go markets. Obviously, for some companies, the area may be better in this respect than for others. But in general, the center of the country's marketing area has moved westward

* Named for the Grave Creek Mound, largest of the burial mounds built by the Adena people who first inhabited the valley; another such mound on Columbia-Southern's Natrium plant was excavated by the Smithsonian Institution in 1949.

† Then Columbia Chem. Div., it operated the Natrium chlorine plant for the government during the war, bought it at war's end.



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Iso-Octyl Alcohol
Decyl Alcohol

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PETROHOL 95
PETROHOL 99
Iso-Octyl Alcohol
Decyl Alcohol
Tridecyl Alcohol
Dicyclopentadiene
Isoprene
Butadiene
Ethyl Ether
Isopropyl Ether
Tripropylene
Tetrapropylene
Aromatic Tars
Acetone
Methyl Ethyl Ketone

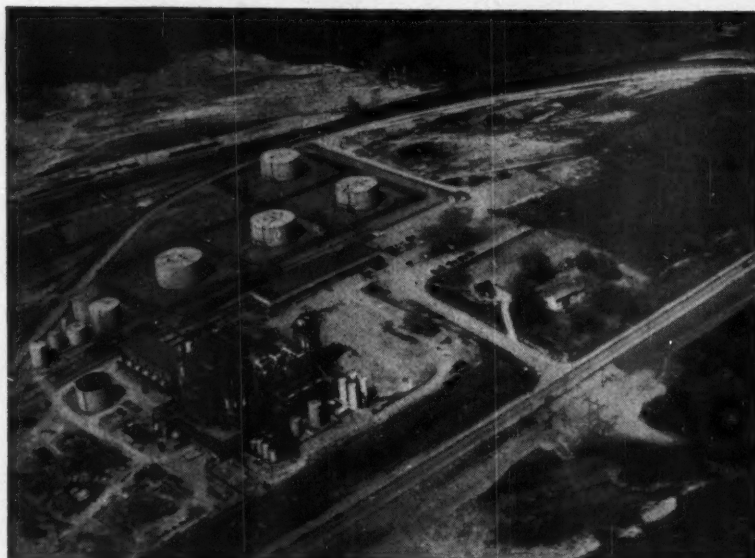


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BAKELITE AT MARIETTA: Building one, planning nine.

B. DUNWAD HOAC

toward this section, and this has been a big factor in the location of chemical companies here.

Power, as can be seen by the new power plants on the accompanying map, is growing by leaps and bounds. There is immediately available some 2 million kw. from nine power plants, most of which are designed for additional generating facilities. (This is exclusive of the 1 million kw. Gallipolis, O., plant, output of which is earmarked for the Atomic Energy Commission plant near Waverly.)

Availability of ample numbers of workmen has been reported by all companies moving into the area. Some of them, however, now say that the new AEC plant is drawing many, but much of this demand is for construction workers, and should not be permanent. Men with a year or two of college are numerous, and ever-pleasing to plant managers transferred from other areas less fortunate in this respect. Moreover, most of the labor force is housed, so housing is not a problem.

The area is surrounded by reserves of bituminous coal, contains extensive fields of natural gas. There's also available oil, steel, cement, ceramics. Land along both the Ohio and Muskingum provides excellent ground water. And, important to chemicals producers, basic chemicals are available by barge from coke oven operations and from other chemical centers such as Institute and Charleston.

Taxwise, conditions are favorable in both Ohio and West Virginia, although there is naturally a variation from community to community. In

West Virginia, there is a statutory maximum limit on industrial property of \$1.50 on each \$100 of assessed property valuation.

High-Class Company: These advantages that led Columbia-Southern first to look on this valley as a chemical center (boosters have dubbed it the "American Ruhr") were not lost on other producers. They soon followed suit, and the roster of companies with plants or sites in the area now reads like a *Who's Who* of the chemical industry.

American Cyanamid's Calco Div. bought 1,100 acres in 1945, started construction that year and went into production in 1947. This Willow Island, W. Va., plant has been almost constantly expanded—the company spent \$15.5 million for initial development of the site over the four-year period 1945-48. Even now, a new administration building is going up, should be in use in September. Products are folic acid, melamine, pigments and Aureomycin.

Calco apparently liked the area so well, it also bought a going concern in nearby Marietta in 1946—Marietta-Harmon Chemicals from its owner, American Home Products, for 30,500 shares of its common stock and about \$400,000 in cash. It now turns out dyestuffs and intermediates for dyestuffs and pharmaceuticals.

In 1946 both B. F. Goodrich and Du Pont joined the crowd. Goodrich at Marietta turns out polyvinyls—cast and calendered films, coated textiles, upholstery, etc. Du Pont's Washington* Works outside Parkersburg began producing nylon and acrylic resin

molding powder, nylon monofilaments and polyethylene compounds there in 1948. A Teflon unit was completed in 1950. Raw materials come from Du Pont's Belle, W. Va., and Deepwater Point, N.J., plants as well as from its Sabine River Works (Texas).

Union Carbide and Carbon Corp., whose Linde Air Products Co. is its latest division to locate in the area, chose Riverview (near Marietta) as the site for Bakelite's phenol plant in 1949. This unit, in production for several years, is just the beginning of Bakelite's plans there. Polystyrene is next on the list of what is described as a nine-unit plant. Styrene for this plant will be barged from Institute.

Adjoining the Bakelite plant is UCC's Electro Metallurgical Co. ferro alloys plant on which construction still continues. When work is completed early next year (and the electrolytic chromium and manganese units are in), the installation will represent a reported investment of about \$125 million. (There will be more ferro alloys in the area, for further down the river Vanadium Corp. of America is still bringing in furnaces.)

Electromet will supply Linde (obviously using a non-Grignard silicone process) with silicon from Alloy, W. Va. Where Linde will get its hydrochloric acid, methyl chloride, etc., has not been decided, but it doesn't have to go far with Columbia-Southern and Allied upstream.

Better than Burning: Columbia-Southern has not yet let contracts for its new ammonia plant, but it hopes to be in production by late next year. The company has been burning as fuel the hydrogen from its chlorine cells (chlorine capacity: estimated 450 tons/day); putting it to work in ammonia synthesis is a natural, considering surrounding industrial and agricultural outlets.

This new venture, while a departure in kind of product, is in line with the ever-expanding history of the Natrium plant, and comes on the heels of an \$8.5-million expansion completed last year. Other products made at the site: HCl, monochlorobenzene and benzene hexachloride.

Solvay's by-product hydrogen from its chlorine plant (estimated at 175 tons/day) will be used by neighboring National Aniline in its new, continuous vapor-phase catalytic reduction of nitrobenzene. Solvay hopes to be in with this plant late this year, and National Aniline should follow

* George Washington in 1772 surveyed and bought this site for his own use. Coincidentally, 587 acres of Round Bottom, where Allied's Moundsville plant is located, was acquired by Washington who bought the rights from fellow officers in the French and Indian War.

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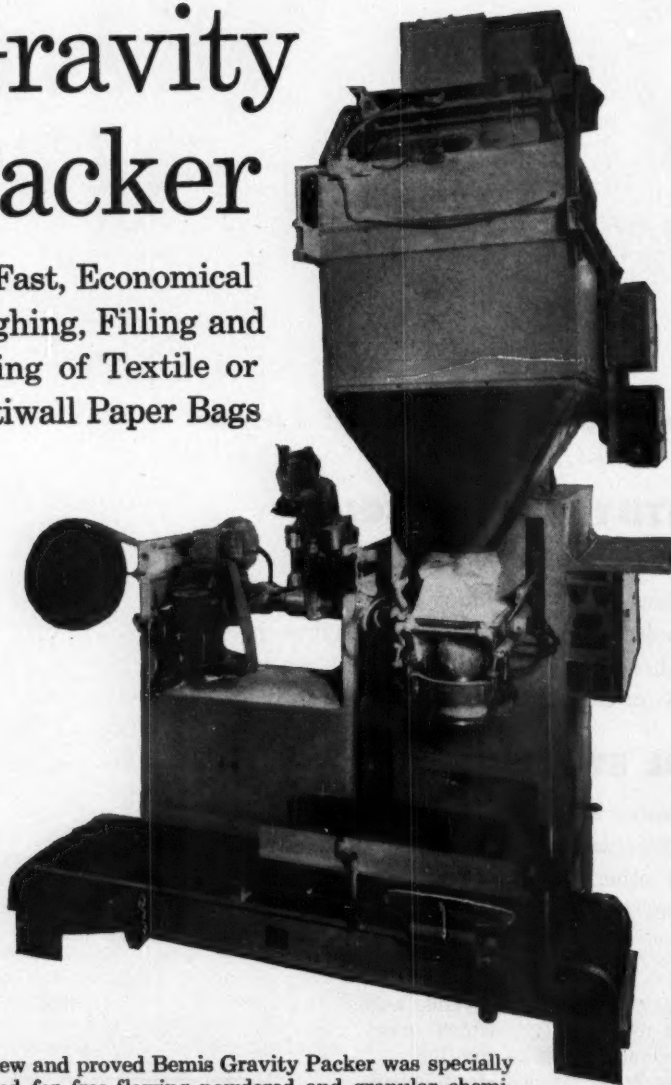
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B & I

in a month or two. The Solvay unit to make methyl chloride, methylene chloride, chloroform and carbon tetrachloride likewise will trail the chlorine unit supplying it. And the first half of '54 is the onstream target date for the maleic plant.

Though Allied is a newcomer along the Ohio below Wheeling, it has been represented by Semet-Solvay and Barrett at Ironton, O. There, Barrett, fed by Semet-Solvay's coking operations, has a tar distillation and phthalic unit. Phthalic went onstream in late 1947, but maleic anhydride facilities recently added are only now coming in. The division also just received a rapid tax write-off on naphthalene at Ironton—\$311,500 at 60% (CW Newsletter, June 20); capacity was doubled last year.

Plenty of Spots: Aside from these new installations, there are a number of glass plants and other chemical manufacturing units that have been on the valley industrial scene for a relatively long time. Around Parkersburg, for example, there are American Viscose, Corning Glass, Demuth Glass, Libbey-Owens-Ford Glass, Porcelain Products, and Universal Glass. Across the river at Marietta, are Marietta Paint & Color and Vanguard Paints & Finishes (next door to Calco). Some of these, of course, have expanded or made changes in the past few years—e.g., Libbey-Owens-Ford, which moved its Vitrolite operation to Toledo some two years ago, revamped the Parkersburg plant to make glass fiber.

Near Gallipolis, too, the West Virginia Ordnance plant (TNT) has been cannibalized—power plant and buildings dismantled—but rail, water and electric lines are still in, and the U.S. Army has some plans for the site.

Next to this parcel is land (1,000 acres) Industrial Rayon has had for four years or so. There is nothing current in the way of developments. The same holds for Carborundum's site below Parkersburg.

In a similar category are Celanese, with 457 acres at Gallipolis Ferry; Dow with land near Ironton; and Wyandotte, with 202 acres—a "choice industrial site"—at Dilles Bottom, O. Queried on the possibility that a chlorine plant will go in there, Wyandotte says it's "still expanding chlorine facilities at Wyandotte, Mich." But there is no denial that such a plant won't ultimately go up in Ohio.

Nor can anyone assume that the latest plans unveiled—for Columbia-Southern's new ammonia plant—will be the last. The upper Ohio Valley seems to be too attractive to chemical manufacturers to warrant that kind of supposition.



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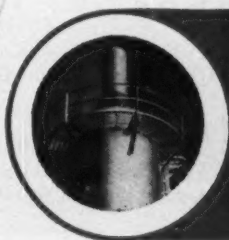
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BUSINESS & INDUSTRY

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State Policing Extolled: Neither the public nor the Food & Drug Administration need worry about the policing of retail drug dispensing, Secretary Robert P. Fischelis of the American Pharmaceutical Assn. declares. In reply to FDA Commissioner Charles W. Crawford's criticism (CW, Aug. 15) that the new factory inspection bill may prevent FDA from probing into neighborhood drug stores' prescription records, Dr. Fischelis says it was the intent of Congress that such policing be left to the individual states. FDA, he adds, should stick to patrolling interstate commerce.

All Bundled Together: In the long wrangle between the Air Pollution Control Board of Louisville, Ky., and National Carbide, the two adversaries have agreed to simplify court proceedings by putting all their eggs in one basket. The seven cases pending against National Carbide in quarterly court will be kept on ice until an almost identical case has been heard in a higher court Sept. 8. If the company is found guilty in the upper court, it'll also take the rap in quarterly court; but if the year-old state air pollution law is knocked down in criminal court, then National Carbide will also go scot-free in the seven cases in lower court.

Skin Balm Battle: While Purepac Corp. of New York has given some indication that it will stop using the word "Dermium" on labels of its medication for acne and pimples, the cessation isn't coming fast enough to suit Philadelphia's Mifflin Chemical Co., which has filed a trademark infringement suit in U.S. District Court, New York. Mifflin says it has been making and selling rubbing alcohols and emollients under the Dermium tradename since 1946, and that the name was registered in the U.S. Patent Office in 1947. Complaining that Purepac hasn't complied with a May 18 request to discontinue the use of the name, Mifflin demands an injunction, an accounting for all profits on sale of products involved, removal of containers from dealers' shelves and destruction of labels, treble damages and costs.

South American Split-ups: By the end of next month, Imperial Chemical Industries and Du Pont expect to complete the segregation of their holdings in the jointly owned "Dupe-rial" companies in Brazil and Argentina (CW Newsletter, July 4). This would be more than seven months

ahead of the deadline for carrying out this part of the court order in the big antitrust case before U.S. District Judge Sylvester Ryan in New York. However, attorneys for the two big companies said more time would be needed to work out with the governments of Argentina and Uruguay the assignment of certain import permits to Du Pont, so Judge Ryan is giving the firms until next June 30 to make those arrangements.

While the general tenor of the final court order is that Du Pont and ICI must compete coldly and aggressively against each other, Judge Ryan is relaxing that judgment to the extent that ICI will be allowed to negotiate with Du Pont for nonexclusive licenses under:

- Nine so-called "fringe" patents on PTFE (polytetrafluoroethylene) in Britain;
- One British patent on metallo-chrome finishes;
- Two South African patents relating to PTFE;
- Two applications for British patents relating to PTFE;
- And four Canadian patents relating to spinning.

KEY CHANGES . . .

L. C. Duncan, W. P. Gee, S. C. Moody, to directors, Jefferson Chemical, New York.

A. E. Horn, Richard J. Prentiss, to directors, Nuodex Products, Elizabeth, N.J.

J. Fred Hedding, Thomas A. Collins, to directors, Glass Fibers, Inc., Toledo, O.

Herbert F. Tomasek, to manager, Pittsburgh Coke & Chemical's agricultural chemical division.

Max E. Colson, to director of operations, explosives department, Atlas Powder, Wilmington.

LeRoy Keane, Harry V. Chase, to assistant general managers, explosives department, Hercules Powder, Wilmington.

Clyde McKinley, to director of research, Air Products, Allentown, Pa.

KUDOS

Gustav Egloff, to honorary fellow, Royal Society of Edinburgh.

DIED

Ferd W. Wieder, 57, vice-president, San Francisco division, Stauffer Chemical.

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How Much They Give
The 1953-'54 scholarship and fellowship tab
for 12 selected companies

	Number	Value	Type
Allied Chemical & Dye	45	\$96,800	SF
American Cyanamid	17	37,000	F
American Potash & Chemical	7	3,500	S
Celanese Corp.	19	53,800	F
E. I. du Pont de Nemours	82	301,000	F
International Minerals & Chemical	33	79,600	SF
Merck & Co.	12	50,000	F
Monsanto Chemical	43	59,000	SF
Chas. Pfizer	72	72,000	F
Procter & Gamble	29	90,000	F
Union Carbide and Carbon	400	500,000	S
Victor Chemical Works	3	6,000	F

Source: CHEMICAL WEEK. Key: S—scholarships; F—fellowships; SF—both.

Altruism With a Purpose

Thirty-one chemical and chemical process industry firms are supporting scholarships and fellowships to the tune of just under \$2 million in the academic year just beginning.

Here's a rundown of what's new in corporate giving, a picture of the trend and its underlying reasons.

It certainly is better to give than to receive—particularly when you're giving to make possible the education of a budding scientist or engineer. That's the consensus of management men who administer the grants, scholarship and fellowship programs of the chemical and chemical process industries. Their concerted opinion is underscored on the eve of the new academic year by a new high in financial aid earmarked by industry for college and university students.

Thirty-one assorted firms in the chemical process industries alone have kicked in with just under \$2 million; more than 1,500 undergraduate and advanced-degree students will benefit in varying degrees from their generosity.

The trend in corporate giving of this kind is upward. For the most part, it's at a comparatively leisurely pace; but add it up and over the past two or three decades the dollar increase is striking. Of the companies listed in the table (above), six did not increase their educational allotment over last year's figure; four—American Potash, Allied, Monsanto, Procter & Gamble—effected moderate boosts; while major hikes were made by Union Carbide and Carbon, and Du Pont.

Reasons for the growth of scholarship and fellowship programs are simple: growing awareness of the importance of basic research; industry's mounting needs for technically trained personnel of all kinds; the well-founded desire to aid the nation's colleges and universities. Admixed with this self-enlightened altruism is a heaping measure of sound public relations.

Reasons for the relatively modest rate of growth are also clear: for one thing, the process of enlightenment, even for industry, is gradual; then, too, companies add fellowships at the rate of one or two a year—and that doesn't register in a sensational way on a financial tally sheet.

That's why a new allotment of \$500,000 for undergraduate scholarships and an added outlay of \$94,500 for teaching grants and fellowships are real eyebrow-raisers. Credit for these goes to Union Carbide and Carbon Corp. and the Du Pont Co., respectively.

Undergrad Boon: Carbide's scholarship program, unveiled earlier this year, functions exclusively at the undergraduate level. For chosen candidates it covers the entire cost of tuition for a four-year course, provides additional allowances for books

and fees. On top of this, each scholarship carries an annual grant-in-aid of \$600 for the college. As the plan progresses, Carbide anticipates that each participating college will receive a total of 8, 12 or 16 scholarships. Ultimately, the program will encompass 400 scholarships, result in an annual tab of approximately \$500,000.

Mechanics of the Carbide plan are a model of modern practice in college-company relations, generally reflect the current temper of corporate benevolence. First off, selection of students and administration of scholarships are entirely in the hands of the college. Aside from personal and academic qualifications, candidates must fulfill one added requirement: they must possess the inclination and aptitude for a career in industry.

But that doesn't bind the successful candidate to a career with Carbide. The company clearly states: "... it is anticipated that career opportunities in many fields will always exist in various divisions of Union Carbide and Carbon Corp. There is no obligation, however, on the part of either the corporation or the student in respect to his employment after graduation. . . ."

Boosting the Trend: Undergraduates also are the chief beneficiaries of a new Du Pont grants and fellowships program. But their gain is less tangible, though by no means less valuable, than financial aid. The new Du Pont program, divided into three parts, is primarily a boost for education—specifically, the teaching of chemistry.

Under one facet of the program, grants have been made to 19 four-year private colleges with the avowed aim of helping them "maintain their outstanding performance in the training of students majoring in chemistry." The money, totaling \$47,500 for the coming year, will be used by the colleges to purchase books, chemicals or apparatus, and in other ways to strengthen their chemistry departments.

Next, 13 postgraduate teaching fellowships valued at \$47,000 have been awarded to improve the teaching of chemistry to undergraduates. This fund is earmarked for use in encouraging doctoral candidates with teaching experience to continue teaching undergraduate chemistry on a half-time basis.

Finally, nine summer research grants totaling \$13,500 have been awarded to make it possible for university chemistry teachers to engage

in research during the summer. The new program—result of a Du Pont survey of educational institutions, industrial firms, foundations and government agencies—operates in what the company feels is a neglected area. In that capacity it appears to be an important "first" in the broad field of industrial aid programs.

Of the \$108,000 to support the new Du Pont program, only \$47,000 (for 13 postgraduate teaching fellowships) is included in the table (p. 35); this sum, combined with \$254,000 (for 69 postgraduate fellowships) allotted for 1953-54 under a previous plan, gives the bulk figure. Here, as in the case of all other firms listed, no account is made of additional money for grants-in-aid, professorships, etc., which are purely for research. Inclusion of such noneducational funds would materially boost the academic aid totals for most companies.

If a trend is to be found in the industrial support picture, it is in the

direction of more undergraduate aid. Aside from Carbide and Du Pont, which are making the biggest splash in this pond, Allied Chemical & Dye, Monsanto Chemical and American Potash & Chemical (of the firms charted) have upped their undergraduate scholarship allotments.

How can this be reconciled with the highly vocal demand by chemical and chemical process companies for more advanced-degree chemists, physicists and biologists, among others? "Easy," claims a spokesman for one of the biggest chemical firms. "We are beginning to realize that there's enough money around to make it possible for everyone who wants a graduate education to get one. At this point, the best way to get more Ph. D.'s is to broaden the undergraduate base, increase the supply of potential graduate students."

On the strength of the facts, this point of view has no dearth of followers, is gaining new adherents.

Water Probe Dilemma

Despite a new \$400,000 appropriation from Congress, the federal salt water purification research program is stymied. Potential contractors aren't coming forward to carry out the research; staff personnel needed to guide the work are also hard to find.

Set up last year (CW, Sept. 13, '52) under the aegis of Dept. of Interior, the program's primary purpose is to find ways of obtaining potable or process water from brackish and salt water. Appropriations the first year totaled only \$175,000, but it's doubtful that the department could have used more. In all, only 11 contracts were let: 7 to universities, 4 to private consultants.

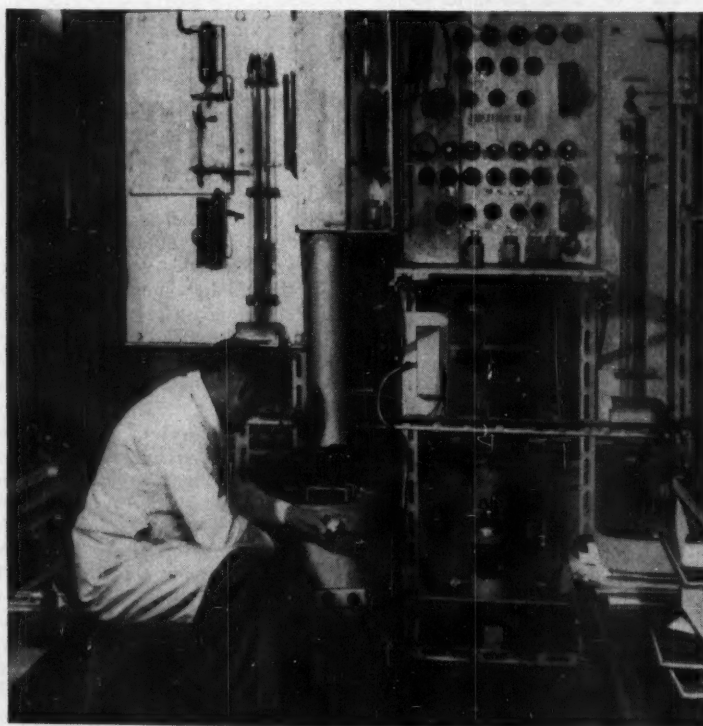
Approaches to the problem are varied, encompass mechanical, chemical and electrical methods. Compression distillation seems to have an early edge on competitive schemes. But the first two final reports (due late this month) on last year's work could point up a different attack.

Also within the next few weeks, Program Coordinator David Jenkins will tackle the job of apportioning this year's \$400,000 fund. Jenkins' aim: to get more research organizations in on the work; stimulate new ideas, greater interest. In view of the apparent dearth of contractors, however, Jenkins might well be left with a surplus. And his job of disbursement is only just beginning.

With an eye to the mounting water requirements of industry and municipalities, Congress last year appropriated \$2 million for a five-year research program. Definitely bucking the trend, Interior is one government agency that must work hard to spend its remaining millions.

Granary Noise: New means for detecting hidden or internal insect infestations in grains have evolved from research now being carried on at Kansas State College (Manhattan, Kan.). Electronic sound detection devices permit the fumigant researcher to rapidly evaluate reagents' effectiveness without waiting several weeks for the surviving insects to emerge; grain companies, too, can check grain without removing it from storage bins.

The sound devices consist of a microphone, low-noise-level audio amplifier, a loudspeaker and a sound-proof box. The instruments are placed in the suspect grain, and through use of an oscilloscope, wave patterns are recorded. Research to date has established that larvae and pupae within kernels cause low frequency sounds, that the sounds are slightly different



Coal Puzzle: Tars and Fines

PERCHED next to high efficiency fractional distillation unit, researcher at England's National Coal Board Central Research Laboratory times throughput of coal-tar distillation. It's part of a program to increase yield and variety of

British commercial coal-tar chemicals. Also under scrutiny: improved techniques for recovering and utilizing fine coals now put to secondary uses. These fines amount to 20 million tons/year—about 10% of English production.

KETONES

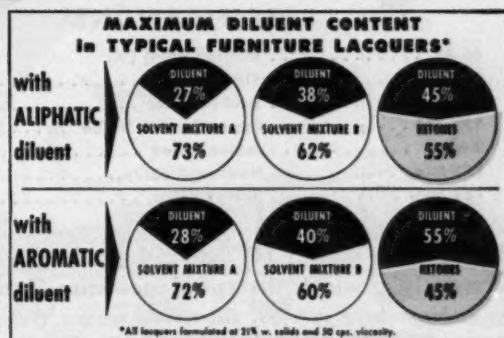
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and here's why!

WHETHER YOU USE an aliphatic or aromatic diluent, you can use more diluent when the active solvent in your lacquer formulations is a ketone.

A glance at the chart will show how ketones give you a better break. Here are six typical furniture-type lacquers with the same solids content and the same viscosity. They differ only in the active solvent employed. Three contain an aliphatic diluent. Three contain an aromatic. Take a look at the diluent content!

The ketone-aliphatic combination holds 45% diluent, and the ketone-aromatic—55% diluent. The ketone-based lacquers show the highest diluent content with both types of diluent.

There are other important advantages to be had with ketones, too. You can get higher solids



concentration in a practical spraying viscosity range. Or you may use greater proportions of the high viscosity nitrocelluloses to obtain lacquers with improved toughness and durability.

The advantages to be gained from using Shell ketones are summarized in two new pamphlets, *This is MIBK* and *This is MEK*. Ask your Shell Chemical representative for your copies.

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Chemical Partner of Industry and Agriculture

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**HYDROFOL
GLYCERIDES 200**

**HYDROFOL
ACIDS 200**

SPECIFICATIONS

86-88	Melting Point (°C)	
70-74	Titre (°C)	70-74
4 Max.	Acid Number	172-182
177-181	Saponification Value	182-187
3 Max.	Iodine Value	4 Max.
155 Min.	Hydroxyl Value	147 Min.
138 Min.	Acetyl Value	133 Min.

These uniform quality HYDROFOL products are being used successfully in widely diversified industries. Typical products are: *lithium-base greases*, adhesives, waxes, cosmetics, paper, rubber, transfer inks, hot melt coatings, plastic phonograph records. Perhaps your products can be further improved with either HYDROFOL Glycerides 200 or HYDROFOL Acids 200. Available for immediate shipment in carload and less-carload quantities. Check the specifications above and write for samples or more information.



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RESEARCH

in each of the different stages, and that an experienced observer can estimate the stage of development from this difference in sound or recorded wave patterns.

Government Briefs: Just off the presses are two new government publications:

- "Tung Hulls and Press Cakes," authored by USDA's Bureau of Agricultural and Industrial Chemistry, offers complete information on domestic availability and chemical composition of these two tung-oil by-products. BAIC researchers also suggest possible new uses based on recent investigations. A free copy is available from U.S. Tung Oil Laboratory, Bogalusa, La.

- "Government Owned Inventions Available for License," prepared by the government patents board, lists 3,658 government-owned patents "which are ordinarily available to the public on a nonexclusive, royalty-free license basis." Some of the more significant patents:

The development of an all-glass paper.

The synthesis of "hot" sugar with one radioactive carbon 14 in the molecule.

New developments in ceramic and metal coatings.

A method for the production of penicillin.

Formulation of a number of anti-malarials.

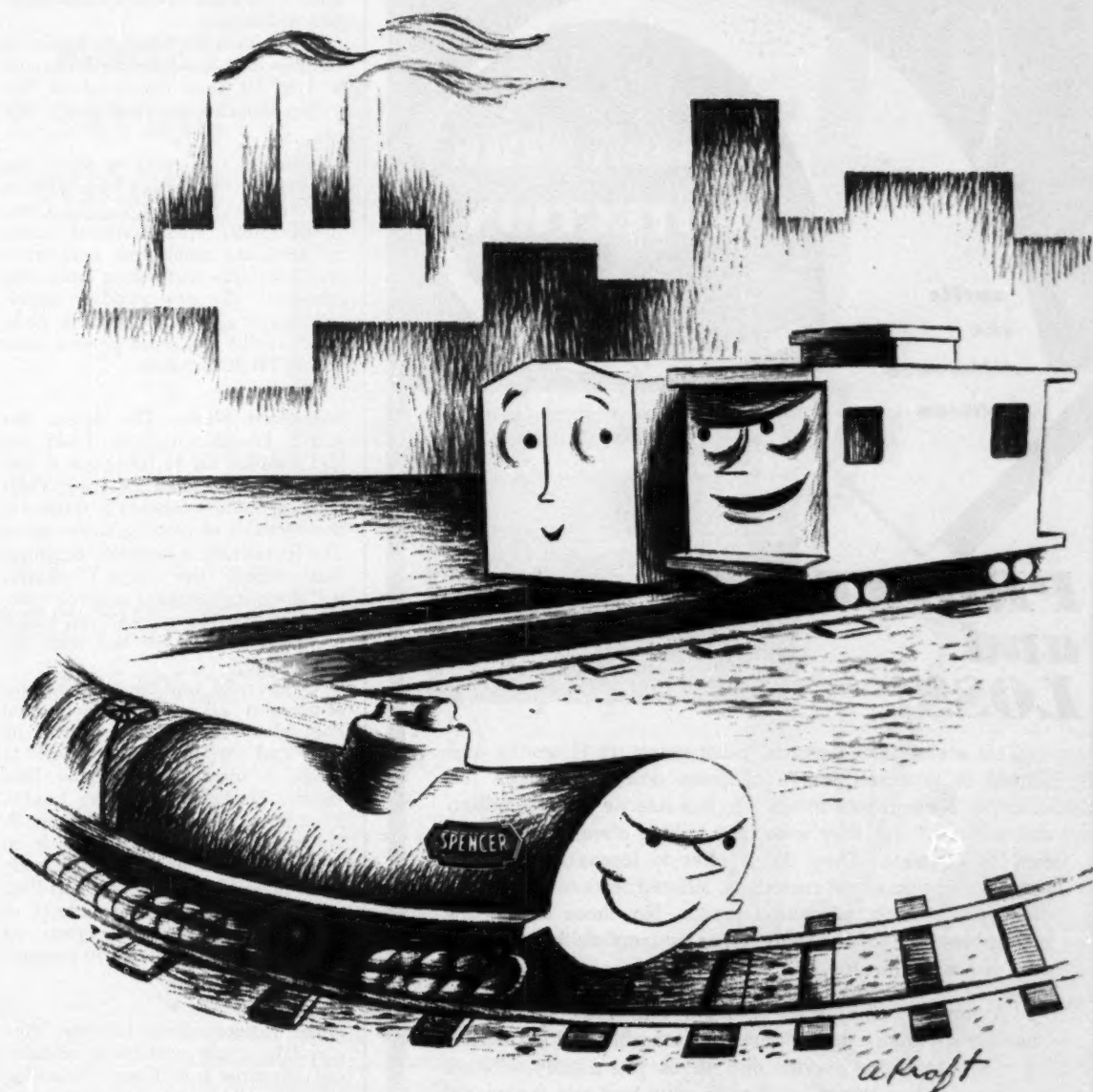
On sale for \$1/copy, it is available by mail from the Government Printing Office, Washington 25, D.C.

Inner Space: Stanford University (Stanford, Calif.) scientists have just perfected what is claimed to be the most powerful microscopic equipment ever built. The device combines an electron linear accelerator with a high-energy electron-scattering apparatus. Electrons "shot" by the accelerator penetrate the nucleus of the atom, are deflected. The scattering apparatus measures their number and the angles of deflection. Stanford says that the microscope can "see" 10 times deeper into the atom than ever before, enough to distinguish particles within the nucleus only two one-hundredths of a trillionth of an inch apart.

Possessed of a potentially fruitful future, the instrument has already revealed some interesting nuclear information. Stanford scientists have found, for example, that:

- The nucleus is not a solid ball of uniformly packed particles, as believed, but more of a cottony sphere.

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America's Growing Name In Chemicals

SPENCER PRODUCTS: Anhydrous Ammonia • Refrigeration Grade Ammonia • Aqua Ammonia • Methanol
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Solutions) • 83% Ammonium Nitrate Solution • FREZALL (Spencer Dry Ice) • Liquid Carbon Dioxide

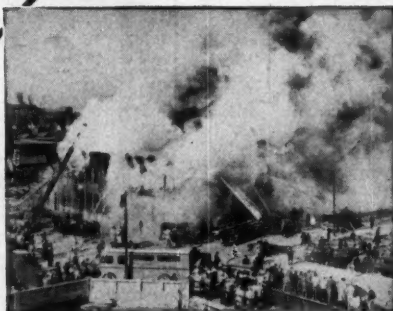
Executive and Sales Offices, Dwight Bldg., Kansas City, Mo. Works: Pittsburg, Kan.,
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"Automatic" Sprinkler

10 point FIRE PROTECTION

spells
the
difference
between

PROFIT and LOSS!



This scene of a chemical plant going up in smoke and flames is repeated scores of times daily throughout the country. Newspapers referred to this one as a "half million dollar blaze." But, they were only talking about the building and its contents. They didn't refer to losses in terms of out-of-service time, lost customers, inflated costs of rebuilding, destroyed records, vanishing profits. No, those losses are intangible—yet, just as real, just as eminent as the physical cost of fire destruction.

"Automatic" Sprinkler 10 Point Fire Protection is an absolute safeguard against fire loss, tangible and intangible. It's a profit making service that saves you money whether you have a fire or not . . . saves your business if you do!

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Write for informative 36-page booklet,
"The ABC of Fire Protection." It's free!

"Automatic" Sprinkler



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RESEARCH

- These nuclear particles, though densely crowded at the core, thin out toward the limits of the sphere almost into nothingness.

- Although the average density is about as previously predicted, the core is 5 to 10 times denser—about 130 trillion times denser than water.

Step-Saver: As a result of the recent availability of methyl isonicotinate from Reilly Tar & Chemical Corp. (Indianapolis), pharmaceutical manufacturers can reduce the isonicotinic acid hydrazide synthesis to a one-step operation. The new pyridine derivative carries a \$6/lb. (drum lots, f.o.b. Indianapolis) tag, could prove a boon to anti-TB drug makers.

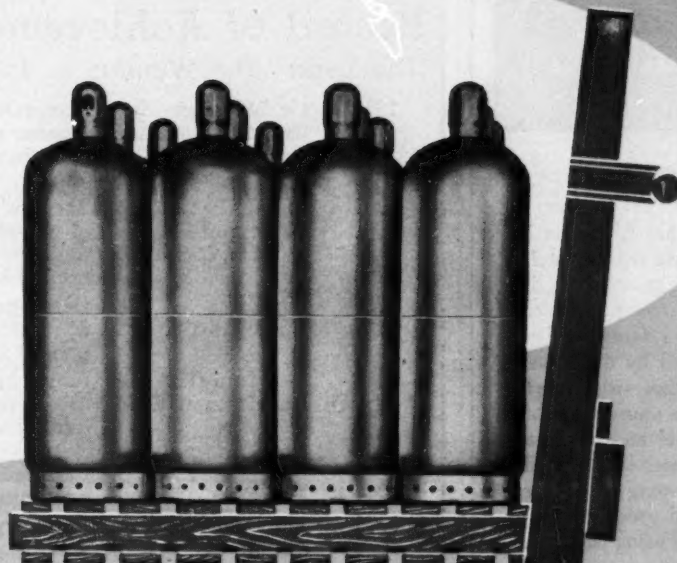
Subsidized Study: The Sugar Research Foundation (New York) has just awarded an \$8,100 grant to the American Bio-Synthetics Corp. (Milwaukee) for investigation of fermentation methods of creating amino acids. The foundation, a nonprofit organization within the sugar industry, will share any resultant research benefits with the Milwaukee firm, which has been carrying on this work for some time.

- Research into the biochemistry of nitrogen and sulfur in hypertension and other vascular diseases will be supported by a \$15,600 grant to Henry Schroeder (Washington University, St. Louis) from the Lasdon Foundation (Yonkers, N.Y.). Immediate goal of the investigation is to determine the amine pattern of body fluids in health and disease. After that, Schroeder will study the effects of various antihypertensive agents on the production of pathologic amounts or kinds of amines.

- **Large Economy-Size:** Iso-octyl thio-glycolate, newly available in commercial quantities from Evans Chemetics, Inc. (New York), is being groomed by the firm for use in antioxidants, fungicides, oil additives, plasticizers, polymerization modifiers, insecticides, stabilizers. The compound is available in 13-gal. carboys and 55-gal. drums.

- **Opening Soon:** Dow Chemical Co.'s new Texas Div. research center is now getting its finishing touches. More than a year under construction, the new research layout will house Texas Div.'s organic, electrochemical and chemical engineering research. Slated for formal unveiling in October, the center will be dedicated in honor of retired Dow director William Veazey.

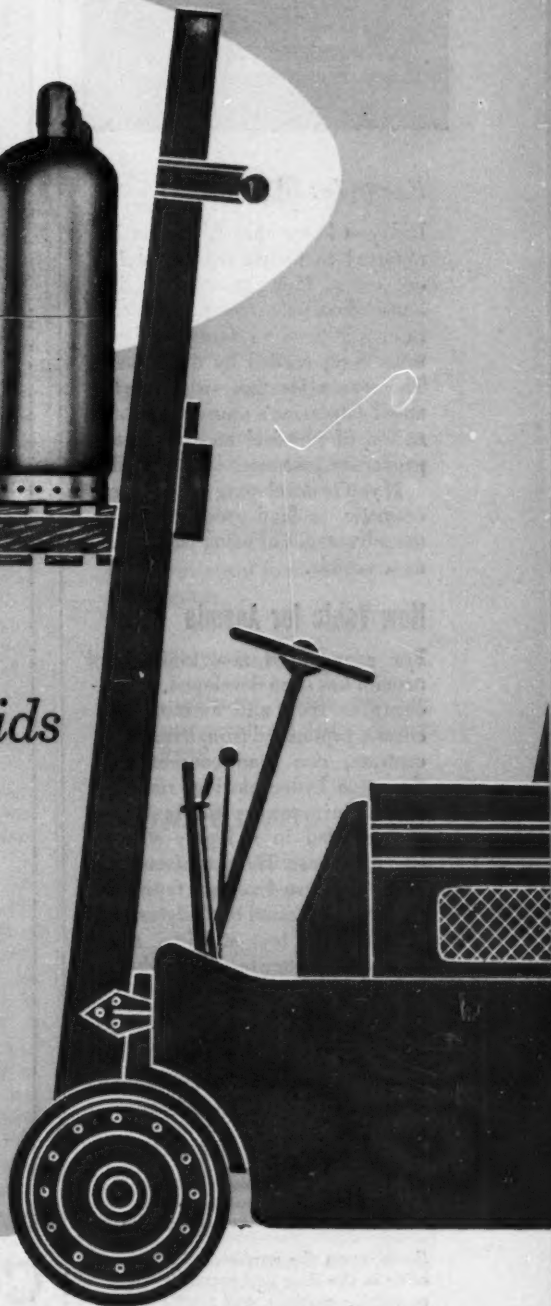
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MONEY
BY SAVING
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medicine is administered.

Example: GLYCERINE!

Did you know that Glycerine is reported to be an ingredient in one out of four prescriptions, in hundreds of proprietary remedies, in over 50% of all liquid medications compounded by druggists! The reason for this wide acceptance? Glycerine's unusual combination of physical and chemical properties just can't be matched.

If you're developing a new drug, cosmetic, or food product, check the advantages of using Glycerine as a vehicle.

New Tonic for Anemia

For example, a new tonic for anemia has been developed which contains iron and ammonium citrate, peptonized iron, liver concentrate, rice bran concentrate, thiamine hydrochloride, riboflavin, niacin, and vitamin B₁₂, compounded in a highly stable Glycerine base. The manufacturer reportedly tested various types of vehicles and found that Glycerine provided the best stability, and also gave a better tasting product.

Balance of Properties

But Glycerine's ability to act as a vehicle is only part of the story. You can count on *versatile* Glycerine to serve as—

humectant	lubricant
solvent	demulcent
plasticizer	suspending agent
sweetener	chemical intermediate

Booklets on the application of Glycerine in the drug and cosmetic, food, protective coatings, and textile fields are available. For your copy, write to Glycerine Producers' Association, 295 Madison Avenue, New York 17, N. Y.

*Nothing takes the place
of Glycerine*

PRODUCTION . . .

Record of Achievement

The Year: The Winner: The Achievement

1933	Carbide and Carbon Chemicals Corp.	Commercial production of a large number of synthetic organic chemicals from petroleum and natural gas
1935	E. I. du Pont de Nemours & Co., Organic Chemicals Dept.	Successful industrial development of neoprene, synthetic camphor, and of certain other important organic chemicals and dyestuffs
1937	Monsanto Chemical Co.	Development of large-scale production and utilization of elemental phosphorus
1939	Standard Oil Development Co.	New chemical engineering processes and equipment to make available super-fuels for aviation as well as other valuable products synthesized from hydrocarbons of petroleum
1941	The Dow Chemical Co.	Recovery of magnesium from sea water
1943	67 American companies	Establishment of a synthetic rubber industry in 24 months, a project that—in normal times—would require a dozen years
1946	122 companies, universities and research organizations	Contributions as prime contractors to the research and engineering that were responsible for building the atom bomb
1947	Merck & Co.	Successful pioneering in the large-scale production of streptomycin and, in a broader sense, distinguished service to humanity
1948	Shell Development Co.	Successful synthesis of glycerine from petroleum for the first time on a commercial scale
1949	Celanese Corporation of America	Chemical engineering integration of its textile, plastics and chemical operations
1951	Phillips Petroleum Co.	Pioneering development of high-abrasion carbon blacks and major contributions to the success of cold rubber
1953	Carbide and Carbon Chemicals Co.	First commercial production of chemicals directly from coal by a high-pressure hydrogenation process

Completing the Cycle

Just 31 years ago this month, a small chemical company in the village of Clendenin, W. Va., quietly announced that it had ethylene glycol available in commercial quantities. Three years later, it moved to South Charleston, W. Va., 25 miles away, and built the first large-scale plant to make ethylene glycol. Originally, the firm was named Clendenin Gasoline

Co., but you'd probably recognize it more easily under its present name, Carbide and Carbon Chemicals Co.

The glycol was produced from ethylene by cracking gas oil. It paved the way for Carbide's branching out into a whole series of chemicals derived from petroleum. Its significance was recognized in 1933 when the company received the first Chemical



FELBECK, CURME, DAVISON: Back to coal.

Engineering award for producing commercially a large number of synthetic organic chemicals "from petroleum and natural gas." The company, in short, was making "petrochemicals" long before the word was coined.

This week, the votes have been tabulated for the twelfth *Chemical Engineering* award. And just 20 years after receiving the first one, Carbide is once again standing in the winner's circle. This time, it's getting recognition for "the first successful production of chemicals from coal by a high-pressure hydrogenation process." It makes Carbide the first two-time winner of the coveted prize. Moreover, it's actually the fourth time the firm has won, for it also shared in two group awards—for synthetic rubber in 1943 and for the atom bomb project in 1946.

Nod to the Team: Like Carbide's earlier one and, in fact, like all the *Chemical Engineering* awards, coal hydrogenation was recognized not because of the accomplishment of an individual but as the result of a cooperative effort. Carbide and Carbon, now the biggest division of Union Carbide, has between 1,000 and 1,500 graduate technical employees. About half of these are chemical engineers.

It's not even possible to single out a captain of this team. Certainly J. George Davison, the articulate, witty president of the firm, deserves much of the credit. He's been with the company since 1923 and now envisions the same bright future for coal hydrogenation chemicals as the one enjoyed by petroleum chemicals 30 years ago.

But an early and enthusiastic ad-

vocate of the project was George Curme, Carbide's brilliant, unassuming researcher. He's now a director of the parent Union Carbide and vice-president in charge of all the corporation's research. It was Curme who developed Carbide's chlorohydrin process for making ethylene glycol (which has since been largely supplanted by the oxidation process).

His voice as a director of the corporation and head of all research was a vital factor in assuring the necessary funds for the project.

Actual production of the coal hydrogenation plant falls under the jurisdiction of George Felbeck, vice-president in charge of the firm's Physical Processes Dept. Felbeck cut his teeth on multimillion-dollar projects with the gaseous diffusion plant at Oak Ridge, where he set up and supervised the engineering, development and operating organizations, and with the design of the firm's first polyethylene plant. He has since relinquished his responsibilities for Union Carbide's work in atomic research and production to devote more time to coal hydrogenation. He was called in on the latter job, says Davison, with tongue in cheek, because he's the "only man in the company who can think in terms of hundreds of millions of dollars."

These three, along with the rest of the team—which includes Harry McClure, executive vice-president, Al Tenney, who will help him market and sell the coal chemicals and Paul Aspaugh, project manager—can take justifiable pride in receiving the CE award. They worked for it.

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are manufactured from long-life resin-bonded glass fiber.

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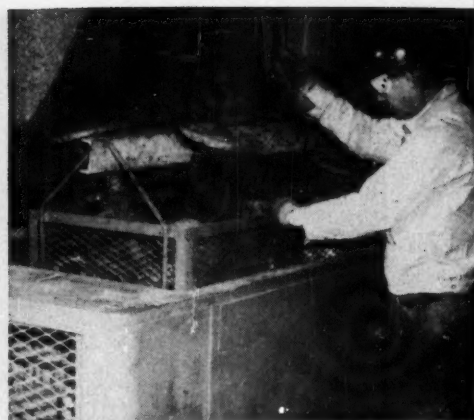
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CORPORATION
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1 AT SALVAGE DEPARTMENT IN FREEPORT, old valves are cut free. Dow maintains duplicate salvaging facilities at Plants A and B, seven miles apart.



2 ASSEMBLED VALVES are dipped into tank of caustic soda for preliminary cleaning.

Double Duty for Parts Turns



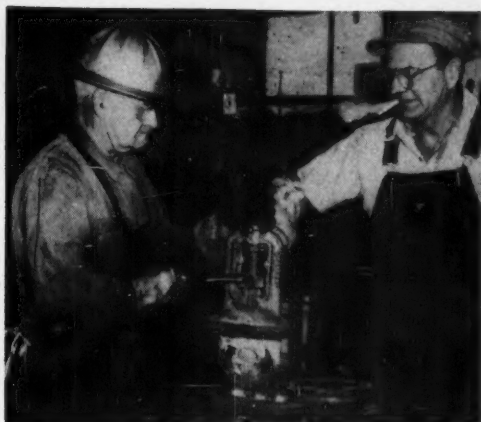
PIPING, TOO, is an important salvage item for Dow. Here, operator works on a piece at breakout table.



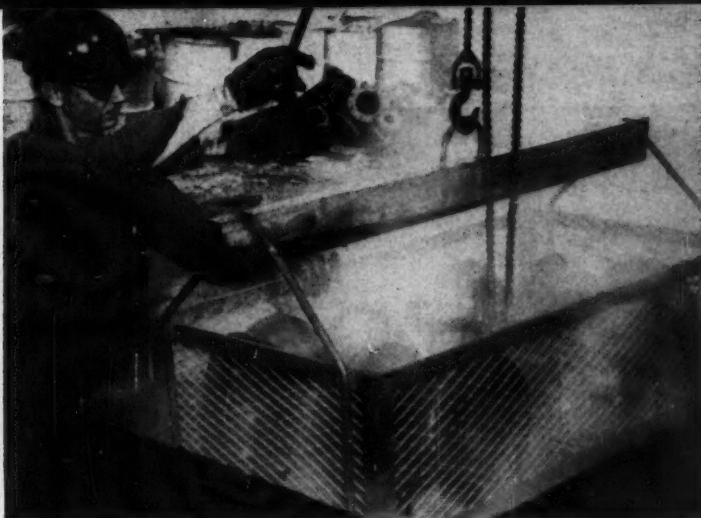
1 FIRST STEP in handling pipe is dismantling. Production material since it's not charged against them. It's standard



2 AFTER LEAVING THE BREAKOUT TABLE, the pipe undergoes a sandblasting operation.



3 THEY ARE THEN DISASSEMBLED and the component parts are inspected.



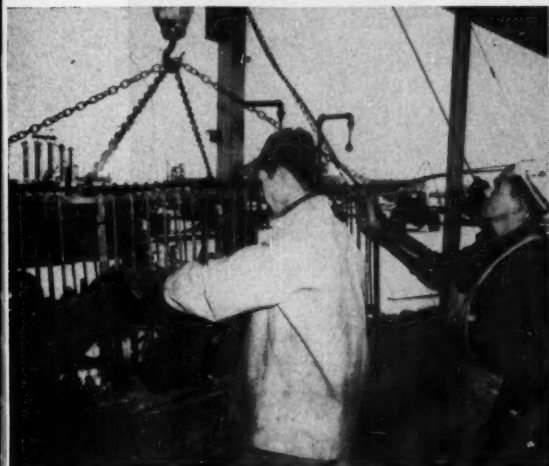
4 PARTS ARE COLLECTED, placed in a basket and lowered into an acid bath. Valves too large for Dow's facilities are sent to an outside machine shop.

Dross to Dollars

(Story starts on p. 46)



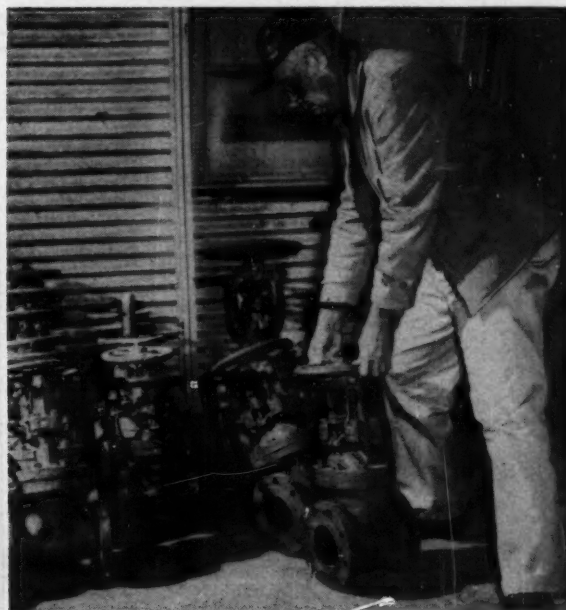
departments welcome the opportunity to obtain salvaged practice to check salvaged equipment before buying new.



3 FINALLY THE FITTINGS go through a pickling step. Some equipment has been salvaged four times.



5 VALVES ARE ASSEMBLED, REPAIRED after bath . . .



6 . . . and in short order are ready for return to the line.



1 CABLES from magnesium cells aren't overlooked at Freeport. Here, wire is sweated out to salvage lugs.



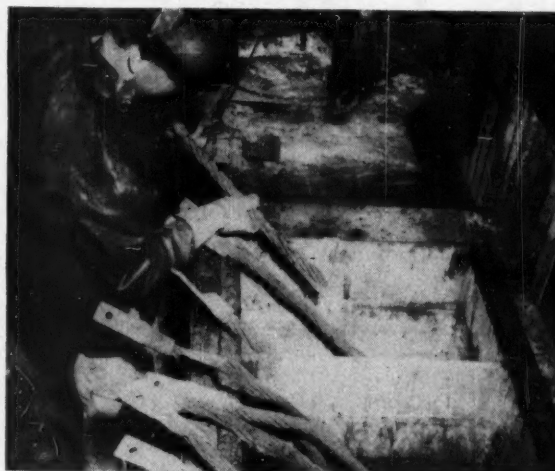
2 NEXT, THE DAMAGED ENDS ARE TRIMMED in preparation for reinstalling the lugs.

Double Duty for Parts

If Dow's B. H. Smith and his 30-man team had their way, the word "junk" would be banished, for their job is to reclaim, repair and recondition used items of equipment at the firm's two Freeport (Tex.) plants.

Members of the team have long since discarded "junk" from their own vocabularies. But this week they're armed with some potent statistics to convince any remaining skeptics of the value of their work. A survey of the last 12 months shows that the salvaging operations at Freeport have netted the firm a tidy savings of \$500,000.

Last week, the CW CAMERA toured the plants' salvaging facilities, observed the three typical operations shown in the accompanying photographs. Basic philosophy of Dow's salvage department is to make the most possible economical use of scrap and waste material. This is accomplished by studying the sources of scrap and working closely with production and design departments to reduce them. Then the salvageable scrap is



3 THEN THE COPPER WIRE is pickled . . .



. . . lugs are installed . . .



. . . and the finished product is inspected.



...and
go to a specialist
for stainless



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August 22, 1953 • Chemical Week

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Besides our broad technical service, you get as fine a quality stainless steel as is made because Crucible REZISTAL stainless is produced in mills that were built exclusively for producing these corrosion and heat resistant steels.

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reconditioned whenever it's economically sound.

The program works out nicely for the production departments, too, since the reclaimed equipment is not charged to them. It's a standard operating procedure at Freeport, in fact, to visit the salvage warehouse before ordering new parts. In addition, the salvage department itself issues regular bulletins listing items that ordinarily would not be found in its warehouse. In that category is such equipment as condensers that might be converted to another purpose, electrical switch gear, or special valves.

Scrap arriving at the salvage department is examined to determine what parts are useable; the pieces are sorted by type. Iron and steel is separated from the more valuable non-ferrous metals.

The reconditioning shops are set up to handle valves and fittings, pipes, raschig rings, office furniture, electrical equipment, process tanks, electrolytic cells, wooden frames and lubricating oils. Practically all materials of construction—cast iron, straight or stainless steel, Monel, nickel, copper, brass, bronze, Saran, porcelain—are found. Typical processing steps

include dismantling, cleaning, repairing, sanding, acidizing, galvanizing, painting.

The idea of salvaging used equipment is not new at Dow. (Nor is it the only firm to maintain such facilities; Du Pont, for example, has a salvage and reclamation division that last year rang up sales on salvaged, reclaimed and surplus materials to the tune of \$4,353,000.) While Dow's department is expanding and new services are being added all the time, chances are Smith will continue to plump for still more expansion and additional services. And chances are he'll get them. He has a strong selling point in the extra half-million dollars added to the company coffers in only one year's operation.

Name Change: Ludlow-Saylor Wire Co. (St. Louis), makers of industrial wire cloth, has just changed its name to Ludlow-Saylor Wire Cloth Co.

New Standards: At the recent annual meeting of the American Society for Testing Materials (Philadelphia), 63 new specifications and tests were approved. Now being printed, the ASTM specs will sell for \$0.25

each (slightly more, if over 16 pages) as they become available. Further details are available at ASTM Headquarters, 1916 Race Street, Philadelphia 3, Pa.

EQUIPMENT

Programming MC: A new type 60 MC electronic timer is being offered by G. C. Wilson & Co. (Chatham, N.J.). Suited for services requiring timed intervals, delays or other programming, the unit provides a time period range from 0.1 to 60 seconds. Suggested applications: bottle and bag filling, rubber curing, hydraulic presses and electronic heating.

From Within: Edwin L. Wiegand Co. (Pittsburgh) has now added a new electric immersion heater to its Chromalox line. Of flanged tubular construction, the unit can be used for heating water, oil or paraffin, and is claimed to provide a higher heat output than previous models. Flange size is 5% inches (diameter).

Slow Control: New Dazic zero speed switches aimed at slow speed control are now being manufactured by Winterburn Manufacturing Co. (Putnam, Conn.). Shaft driven and self-lubricating, the units operate on a shaft rotation of 15 rpm acceleration and 8 rpm decreasing shaft speed. They can be driven at 5,000 rpm and at temperatures from -20 F to 250 F.

Cold Control: Haledy Electronics Co.'s (New York) newly developed line of photo-electric controls features cold cathode tube design. This equipment, declares Haledy, eliminates complex circuitry, costly filament and plate transformers and high-voltage power supplies.

Applications & Advice: Just off the press are three new booklets aimed at the chemical industry:

- "Applications Unlimited," published by The Beryllium Corp. (Reading, Pa.), details ways in which beryllium copper can help production men solve their design problems.

- Chemical Safety Data Sheets SD-52 and SD-53, compiled by Manufacturing Chemists Assn., Inc. (Washington, D.C.), concern safe handling and use of hydrogen peroxide and sulfur dioxide. In addition to physical and chemical properties, they list proper methods of shipping, storage, handling, unloading and disposal of the peroxide and dioxide.



Acres of Planning

FACSIMILES—blueprints, whiteprints, Ozalids, photostats—literally acres of them are needed every month just to keep a plutonium factory moving along. This June the General Electric-managed Hanford plutonium works (Richland, Wash.) turned out a record 23½ acres of facsimiles—1,020,460 sq. ft. of chemically treated paper

(*CW, July 25*) to help the Atomic Energy Commission plant grow.

Since taking over operation of the Hanford works from Du Pont in Sept. '46, GE has been running the show for the U.S., which pays the bills. And when the contract expires in June '56, it's a safe bet that a sizable cost item of production will be reproduction.

Proved through the years

Time is the test of dependability. Behind Nialk Chemicals are more than fifty years of experience in meeting strict specifications.

a typical example...

NIALK CAUSTIC POTASH: Railroad signals and navigation lights must give instant, peak performance in all kinds of weather. NIALK Caustic Potash sees that they do. It "weatherproofs" electric cells, assures dependable current even at sub-zero temperatures.

The quality of this and other NIALK chemicals—today as in the past—is the result of broad research, strict quality control and a knowledge of the needs of industry.

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CAUSTIC SODA
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NIAGATHAL (TETRACHLORO-PHTHALIC ANHYDRIDE)



DISTRIBUTION . . .

Lure For the Lowlands

Starting next month, readers of business publications will be exposed to a new promotional campaign sponsored by the long-titled Director-General for Industrialization of the Netherlands Ministry of Economic Affairs. The purpose: to convince American manufacturers that the best way to lick foreign trade restrictions is to build plants overseas—and that the best spot for those plants is in industrial and industrious Holland.

The overseas shock troops for this campaign are organized into the Netherlands Industrial Institute—a government-sponsored and industry-backed private foundation. Its U.S. outpost is manned by Joseph Bourdrez and his assistant, Everard Barretta. Working out of a mezzanine office suite in New York's Biltmore hotel, they are quick to capitalize on even the mildest interest shown by an American manufacturer to expand overseas operations.

At least four U.S. chemical companies are now in the active planning stage. To keep them on the hook, the institute acts as an energetic fact-finding agency. Surveys are conducted, statistics are compiled, and answers to specific questions are obtained. Other nations are, of course, also eager for U.S. investments; consequently the institute acts in a competitive atmosphere.

Already established in Holland are such companies as Du Pont (through

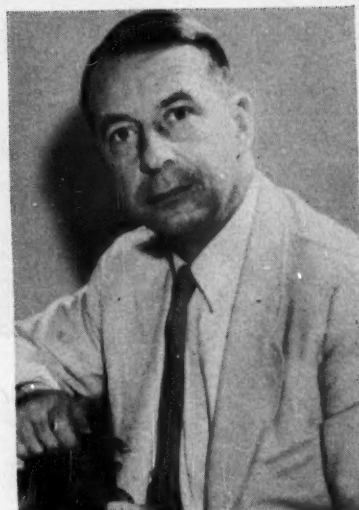
a nylon licensing agreement with Dutch Enka); Hercules Powder (with a synthetic resin licensing deal and a naval stores subsidiary); and Reichhold Chemicals (with chemical colors made by an affiliate company).

Nearly a hundred other foreign firms have moved into Holland since the end of World War II. And chances are most of them were motivated by the country's geographical position and economic status—rather than by the usual criterion of resources and markets.

In the Center: The Holland market, in fact, could hardly support any really large-scale venture. But this, says the institute, is more than counterbalanced by the nation's central position in the hub of the German, British and French complex. Companies that find themselves competing in world markets with manufacturers from these countries can thus equalize the struggle—without actually moving into their competitors' own domestic sphere.

To complement this geographical attribute, the Dutch government has done its best to make the nation's economy attractive for foreign investors. Here are a few of the sales points used by NII officials:

- Few, if any; restrictive laws have been imposed on non-Dutch concerns. This allows for complete equality with domestic firms on such corporate questions as capitalization,



NII'S BOURDREZ: Geography lends a helping hand.

management organization, and assignment of personnel.

- All "normal profits" of manufacturing operations are freely transferable into dollars. The same is true for the recouping of initial dollar investments and accrued profits.

- Labor conditions are favorable. "Modest wages," says the institute, "provide a high standard of living in the Netherlands. The average Dutch worker is industrious, energetic, cooperative. . . ." This factor is reflected in the strike record—one working day lost in 20,000—world's lowest.

By combining these present-day features with Holland's centuries-old pre-eminence in international banking, shipping and forwarding, the institute has put together a sales package it thinks should catch the eye of any trade-minded U.S. firm.

Plugging the Dike

"Chemical spokesmen" are being given the credit in Washington, D. C., for the successful deletion of a potentially troublemaking change in the customs simplification bill—now signed into law by the President.

The section involved was the provision that would have made the export price to the U.S.—rather than the foreign market price—the main basis for the evaluation of dutiable imports. To chemical protectionists, this seemed like a first step toward eventual abandonment of present-day "American selling price" basis used for coal-tar products and other important imports.

But the battle isn't over. Rep. Thomas Jenkins (R., O.) has put the dropped provision through the House as a separate bill. It'll reach the Senate at the next session.

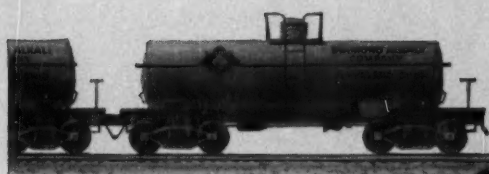


REICHOLD CHEMICALS

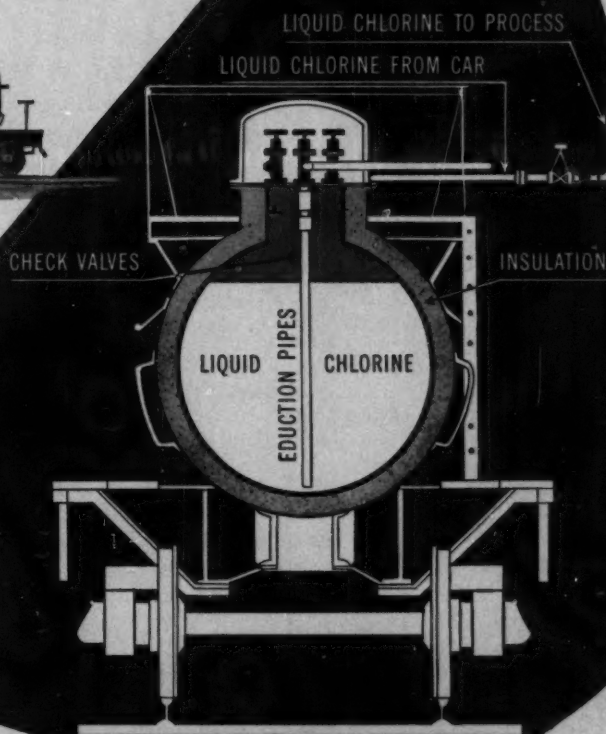
IN HOLLAND: Chemical colors based on American know-how.

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if you use **CHLORINE...**



look at it
this way...



This drawing, taken from our Chlorine Handbook, illustrates more than a cross section of one of our single unit tank cars. It also is an example of our special knowledge of and interest in the safe handling and shipping of Chlorine.

As one of America's largest producers, we have accumulated a wealth of information and experience. Our experts are at your service to make this experience available to everyone in your plant who handles Chlorine. Whatever your handling problems, there is a **DIAMOND** man ready to come to your plant to work with you. Just call your nearby **DIAMOND** Sales Office, or write:

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SILICATES	ALKALI SPECIALTIES
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Advance Bulletin

DEWEY AND ALMY

Chemical Company

FILE NUMBER

E-7

DATE

July 1953

ANNOUNCING

DAREX EVERFLEX

DESCRIPTION: A unique copolymer of vinyl acetate, internally plasticized, thus overcoming those problems inherent in the compounding of polyvinyl acetate with chemical plasticizers. Everflex replaces polyvinyl acetate in regular formulations for coating and adhesives, but requires no plasticizer addition. Therefore, there is no plasticizer to be lost, to migrate, or to be leached out. Everflex is a vinyl acetate copolymer possessing permanent plasticity.

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For coatings and adhesives where conventional polyvinyl acetate emulsions are now used.

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SHOE PRODUCTS • CONSTRUCTION PRODUCTS • TEXTILE PRINTING PRODUCTS • METEOROLOGICAL BALLOONS

Growth of a Family

- 1900 Professor F. S. Kipping begins investigations on organo-silicon compounds at Nottingham, England.
- 1930s General Electric, Linde Air Products, and Corning Glass Works all start independent silicone experiments.
- 1941 Dr. E. G. Rochow invents direct process (using, for instance, methyl chloride and silicon metal). General Electric research laboratories at Schenectady, N. Y., build pilot plant. Corning Glass asks Dow Chemical to investigate commercial production methods.
- 1942 Dow Chemical starts production of silicone fluids, water-proof dielectric compounds and insulating resins.
- 1943 Dow Corning Corp. is formed and construction of major plant started at Midland, Mich.
- 1944 Silicone rubber becomes commercially available. GE expands pilot-plant facilities.
- 1945 Silicone greases, laminating resins and paint compounds are put on market. Dow Corning completes \$3-million plant. GE starts construction of a commercial facility at Waterford, N. Y.
- 1946 Mold release compounds (for rubber and plastics) and pan glazes for bakeries are introduced.
- 1947 Glass-cleaning papers are developed. Linde starts building its Tonawanda, N. Y., pilot plant. Plaskon starts silicone experiments. GE completes Waterford plant. Dow Corning doubles Midland capacity.
- 1948 Automobile polishes and textile water-repellents provide markets for silicones.
- 1949 Silicone-alkyd resins are introduced. Linde starts selling commercial products. Dow Corning capacity doubles again.
- 1951 Market for masonry water-repellents is developed. Plaskon sells pilot-plant quantities. Dow Corning doubles capacity for third time. GE finishes quadrupling Waterford output.
- 1952 Raw silicone rubber gums, water-soluble compounds, and silicone-based ointments are introduced. Dow Corning starts \$16-million expansion program to quadruple capacity and bring total investment up to \$23 million.
- 1953 GE completes latest \$5-million plant growth. Linde breaks ground at Long Reach, W. Va., for \$13-million facility.

Baby Makes Three

Silicone-small Linde Air Products decides to become an adult. It'll build—for a reported \$13 million—a major new plant on the Ohio River in West Virginia.

This move will convert the glamor-chemical silicone industry from a "big two" to a "big three" status. Dow Corning and General Electric are sure "there's room for all."

In out-size black headlines, local newspapers along the Ohio River north of Parkersburg, W. Va., have been gleefully telling their readers that their valley is about to become the cradle of the biggest chemical development of the century. Somewhere along the line, a label of "\$200 million" was attached to the forecasted event.

Considerably less expansive—but still significant—are the actual facts: Linde Air Products has decided to break ground this fall for a major new silicone plant on a 1,400-acre plot near the hamlet of Long Reach. While mum on the exact investment involved, Linde tipped its hand by obtaining a \$13-million certificate of necessity for its new venture.

If this second figure is even approximately correct, it means that Linde will be jumping in one stage from a lagging third position to a status practically equal to the two dominant companies in the silicone industry, Dow Corning and General Electric. And chances are this three-some relationship will remain in effect for the next few years of silicone development; fourth-place Plaskon (division of Libbey-Owens-Ford Glass Co.) has no immediate plans for an equivalent leap, is content with its present pilot-plant experiments.

Linde's entry into the silicone big league is anything but a spur-of-the-moment affair. Actually, the Union Carbide and Carbon division was one of the first to experiment with the new family of chemical compounds (see box), and the company claims that it has been a leader in silicone research and development since the start. Why then the late-start strategy? Industry observers tend to concede that Linde has had cogent reasons for its delay.

No Rush: In the first place, silicones were, practically speaking, an entirely new and different type of chemical substance. Relatively high-priced, they could not be expected to find ready markets simply by replacing established, cheaper products. Instead, development work would have to concentrate on uses for which no present materials could be specified. Thus silicone market development has been slow, complex, expensive; pioneers have had to support research and sales service staffs far out of proportion to the actual poundage sold.

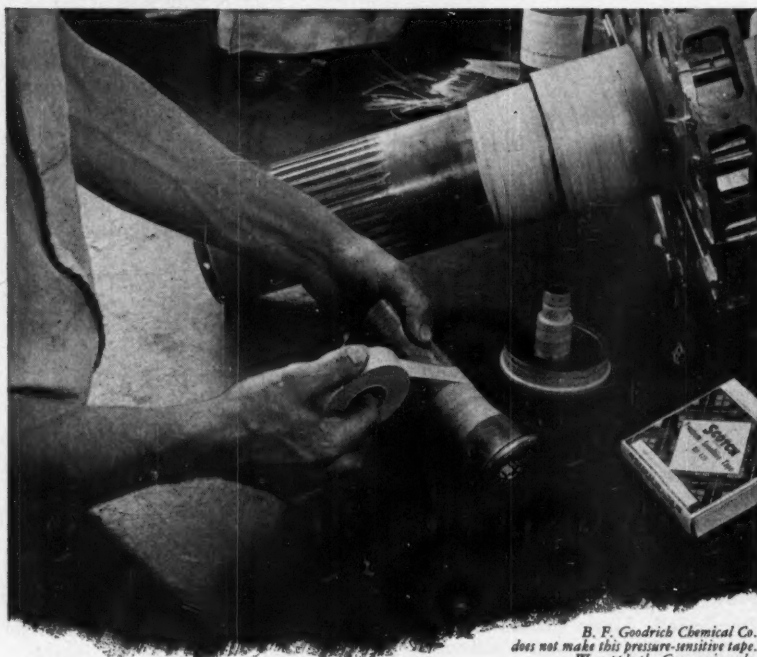
In a sense, this basic exploratory period is now drawing to a close. Many new developments are still in the research stage, but a dozen or more general markets have been firmly established. The base is now large enough to support full-scale production and marketing operations.

During the development build-up period, there was no real reason for Linde to plump heavily into production itself. In this regard, it differs from both of the "big two." Both Dow Corning and the newly formed Chemical Div. of GE were organized for the specific task of capitalizing on silicone sales. They couldn't afford, therefore, to lose their leadership status—and production capacity had to be kept ahead of forecasted sales.

Linde, on the other hand, was in no particular hurry. Its pilot plant at Tonawanda, N.Y., provided a steady flow of material for small-scale market development—and provided a means for a flexible research program. Today, for instance, Linde is the only commercial source for vinyl silicones

Another new development using

B. F. Goodrich Chemical raw materials



B. F. Goodrich Chemical Co.
does not make this pressure-sensitive tape.
We supply the Geon resin only.

Tape that Wraps Up Plating Problems

...speeds work...cuts costs!

HERE'S a plastic tape that makes short work of troublesome plating problems, even on irregular surfaces or "hard-to-do" parts. It is backed with a Geon vinyl plastic film, giving it many extra advantages that save time and money.

The tape has a strong adhesive, clings tightly to surfaces. Cleaners or plating solutions can't creep under it. Conforming snugly to uneven surfaces, the tape whisks off cleanly when the job is done.

And look at the advantages of this tape! The Geon plastic backing withstands hot or cold cleaners, remains pliable under long immersion in plating solu-

tions. Geon resists acids, alkalis, water, many chemicals, stands up even in hard chrome plating.

What Geon does for this plastic tape may start you thinking how Geon can help you improve or develop more saleable products. There are many versatile Geon materials, and we'll help you select the one best suited to your needs. For technical information, please write Dept. E-9, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.



GEON RESINS • GOOD-RITE PLASTICIZERS...the ideal team to make products easier, better and more saleable

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DISTRIBUTION

—promising as a sizing for resin-impregnated glass wool and other organic-inorganic binding jobs.

Moreover, Linde's delay has also permitted it to avoid most of its future competitors' development blind alleys and to capitalize on the marketing ideas that appear to be most successful. General Electric, for example, last year broke precedent by offering the rubber industry a noncompounded silicone gum. Reflecting the success of that plan, Linde is now expecting to base its rubber-industry sales strategy on a compound-it-yourself theme.

Coverage: Another important factor in Linde's thinking has undoubtedly been the fact that the organization could move fast once it started. Its first major production facility could be economically gigantic. Founded in 1907, Linde is known especially as a producer and distributor of industrial gases—with a national network of warehouses and salesmen. These will come in good stead when the distribution of silicones on a large scale becomes a pertinent problem—as it well may, for one industry source now estimates that the present market for silicone products is about 5 million lbs./year, and that this relatively conservative amount is bought by 10-15,000 individual customers.

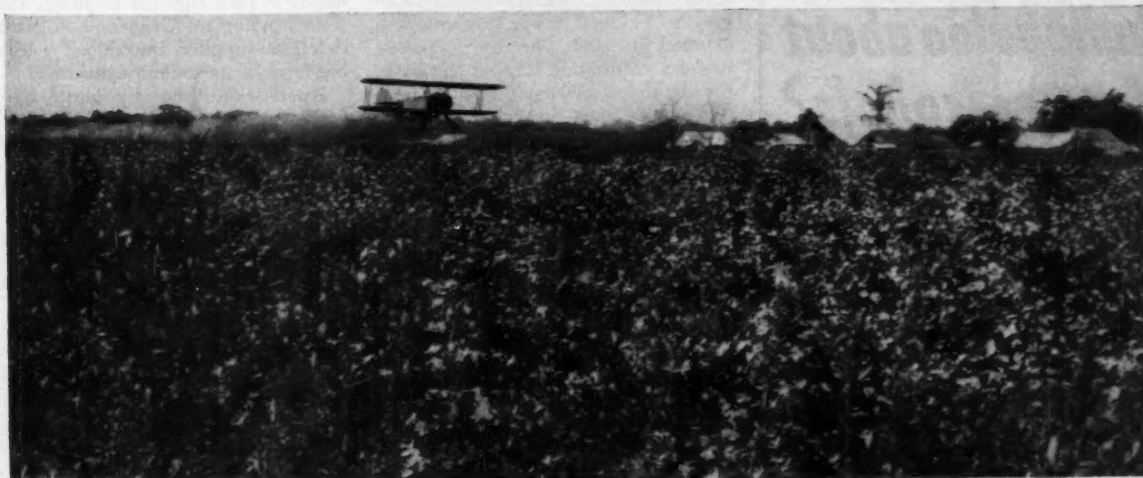
Also contributing to Linde's potential strength is the fact that the present major source of silicon metal—the Electro Metallurgical Co.—is a fellow UCC division. Dow Corning is just now completing a silicon furnace that it felt it had to build in order to assure itself of an independent supply source. And GE reports that "in the future it will probably consider producing its own silicon." But for Linde, this will never be a problem.

Industry opinion seems to be that augmentation of today's twosome will have a temporarily unsettling effect on the market.

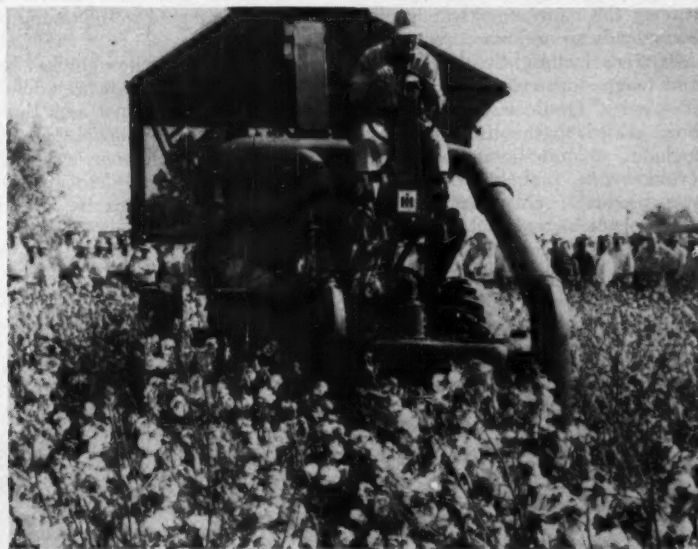
"Things will be pretty crowded till 1956," remarks one executive. But by that year, everyone agrees, present and future market outlets will have grown so that "there'll be room for everyone." Linde's entry will be recorded as just one more scene-opener in the ever-expanding drama of silicone chemistry.

American Cyanamid Co. has just published a catalog describing properties and uses of its plastic materials. Included is a "gluing-to-standard" guide outlining the military and commercial specifications met by the company's adhesives.

SPECIALTIES



AIRBORNE DEFOLIATORS: A chemical cloud speeds harvesting cotton, cuts boll loss, reduces pest populations, helps a . . .



MECHANICAL PICKER get a cleaner load, a more thorough harvest.

Chemical Harvest Hand

Call for cotton defoliant, hushed by early-season Texas drought, seems to be sounding again as rain revives hopes and crops.

Growing demand for defoliant in last half-decade indicates a \$10-million market this year for the chlorates, cyanamides, cyanates and similar compounds.

And the limit's far from reached; little more than 10-15% of total acreage is defoliated now, and interest is quickening.

It isn't often that cloudy skies brighten a scene, but that was the case in Texas recently, when rains cheered

not only the cotton farmer but the producers of cotton defoliant, as well.

When the now-in-progress cotton harvest began last month, a major portion of the Lone Star State's crop was threatened by a drought—considerable acreage had to be abandoned in the Rio Grande valley, and more than one firm reported that defoliant sales had wilted as if they'd been hit with their own chemical.

Hard-hit Texas is far from the only cotton producing state, of course, but its 9.6 million cotton acres make up a major fraction of the 24.6 million acres in the U.S. And in many other regions water has not been abundant.

Nevertheless, the rain has refreshed hopes for defoliant sales in the vicinity of \$10 million this year, and the five-year, tenfold zoom in use of defoliant seems likely to remain unchecked. Most producers are breathing easily, almost confidently now, figure the acreage treated with defoliant will be above last year's nearly 3 million.

Council Counsel: Helping to push use of the defoliant is the National Cotton Council (Memphis), a cooperative group, which has prepared guides for cotton growers that not only set forth advantages of defoliant and methods of application, but also list some 16 products offered by at least a dozen manufacturers.*

Closely tied to the rising use of the defoliant has been the trend toward mechanical harvesting equipment—the machines are impracticable unless the fields are chemically treated. As the NCC points out, defoliated

* American Cyanamid, American Potash & Chemical, California Spray Chemical, Chapman Chemical, Chipman Chemical, Dow Chemical, General Chemical Div., Niagara Chemical Div., Pacific Coast Borax, Pennsylvania Salt, Stauffer Chemical, and Thompson-Hayward Chemical are those listed in the Council's '53 guide, although other firms are also selling the products.

Why all the big hullabaloo about fatty alcohols?

The availability of low-cost technical grades of fatty alcohols is making chem-men sit up and take notice of these straight-chain organic compounds. The reason CACHALOT brand cetyl, oleyl, or stearyl alcohols are often specified is simple: the technical grades are vacuum-distilled to the same high standards of uniformity as are CACHALOT NF and USP grades. These versatile raw materials offer a wide choice of reactive possibilities: as condensates, esters, sulfates, phosphates, etc. CACHALOT fatty alcohols come in fifteen basic types as well as custom mixtures. For full information on how to use CACHALOT in your products, write *M. Michel and Company, Inc., 90 Broad Street, New York 4, N. Y.* Basic suppliers to chemical manufacturers for over twenty-five years, their trade name for these fatty alcohols is

Cachalot®

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CHEMICAL INDUSTRIES

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SPECIALTIES

cotton can be machine-picked with greatly reduced trash content and lowered lint stain. And by promoting uniform maturation date of the bolls, the defoliants reduce the number of times fields must be picked.

Too, growers have found that defoliants help the hand pickers, permit earlier starts and ease the picking chore.

Leaf removal has lowered population of the damaging insects (aphid, boll weevil and leaf worm) by destroying late growth—an additional, indirect pesticidal effect.

Getting the Drop on Cotton: Dust forms of the defoliants—calcium and sodium cyanamides—were the first to be employed (principle was discovered in the Carolinas in '38) and still probably rank as the number-one sellers.

In addition to the dusts, a number of spray-type defoliants are in use. Among the more recently introduced compounds are sodium ethyl xanthate (Stauffer's forthrightly titled S.E.X.) and magnesium chlorate hexahydrate (Pennsalt's De-Fol-Ate). They have been added to the list that already includes chlorate-borate compounds (volumewise, probably the number-two product), chloroacetates, cyanates, pentachlorophenol and endoxophthalates (the latter two are esti-

mated to rank third in volume). This season American Cyanamid, a prime defoliant supplier, introduced a soluble form of its sodium cyanamide.

Application rates vary considerably with compound and area. With the dusts, 25-40 lbs. per acre are used. About 7-10 lbs. of the spray types are generally put on—and for both types, an airplane is the favored means of application. Texas cotton experts put the cost of using defoliants at \$2.60-2.75/acre, although it can sometimes run as much as \$5/acre.

Mist a Must: A dew or mist—a prolonged moisture source—is necessary to activate calcium cyanamide dusts. Leaf moisture is generally sufficient to make monosodium cyanamide dust work, and sprays may be used under arid conditions. Under extremely dry conditions, however, a greater quantity of spray must be used, and in the case of all defoliants, careful attention must be paid to the timing of the application.

In areas where drought has been a factor in cotton growing, defoliants like pentachlorophenol and Endothal (disodium 3,6 endoxohexahydrophthalate) will likely enjoy a sales spurt. Penta is not a true defoliant, but its destruction of leaves has the same effect.

On irrigated cotton land—about



Lengthening Shortening Line

MARCHING off the production line at the just-opened plant of Mrs. Tucker's Food (division of Anderson, Clayton & Co.) in Jackson, Ill., are cans of vegetable shortening. The new plant, dedicated last week, is one of the larg-

est vegetable oil-processing plants in the country—includes storage tank facilities for 600 rail tank cars, a vegetable oil refinery, hydrogen production plant, packaging plants, and refrigeration and warehousing units.

38% of cotton is now grown on irrigated land—moisture can be regulated to some extent, and is less a factor in picking the defoliant. Nevertheless, dew and wind conditions still affect the choice.

Last-Minute Buyers: Drought hasn't been the only factor in defoliant sales this year. Suppliers of these chemicals are squarely up against the difficulties currently affecting suppliers of all agricultural chemicals: farmers have been reluctant to buy in advance, and won't stock up on any chemicals. Right now, demand for defoliants is good, but at least one ag chemical firm, discouraged by early slow sales in Texas, is now hard put to ship sufficient supplies to meet the increasing call for its product.

Planting procedure also affects defoliant sales; it is only this year that Alabama growers are swinging to planting tailored for machine picking and the use of defoliants. And in California, close to 75-80% of the growers are defoliating now, a better than 60% jump in use of the chemicals.

On the other hand, the drought that hit Texas also hit Mexico, and drove many laborers into the U. S.—and the cheap labor has been employed where the drought-limited yield per acre has prohibited use of defoliants. But this is a temporary condition (lack of cheap labor has largely caused the switch to mechanical harvesting, and the accompanying surge in defoliant use), and years ahead are admittedly bright for makers of both the machines and the chemicals.

Mastic Overcoat

Said to withstand temperatures as high as 5000 F, a new sprayable coating compound has been developed by B. F. Goodrich Co.

Like Ideal Chemical Co.'s Flamemastic (CW, June 20), the new coating, Pyrolock, is claimed to be particularly resistant to extreme thermal contrasts, such as are encountered in the motor unit assemblies of rockets and guided missiles.

Goodrich terms its Pyrolock a water-base inorganic material that is nontoxic, nonflammable, nonexplosive. It can be applied directly to clean metal surfaces without sandblasting or priming surface preparations. A film 1/16 in. thick is said to protect metal for as long as 10 seconds against flame temperature hotter than its melting point.

Worked out for the military, Pyrolock is currently being used exclusively by the armed forces. But Good-



FIRE STOPPER: Another mastic for missiles and rockets.

rich, which prices its coating at about \$5.05/gal., is hoping to uncover commercial uses too.

Composition of the paint, regarded more as an insulator than as a flame protectant, is kept secret. It is available in tan color only, but can be painted with any paint suitable for alkaline surfaces.

Johnson Grant: S. C. Johnson & Son, Inc., Racine, Wis., has made grants totaling \$16,600 to provide scholarships and fellowships to students in Midwestern colleges. Ten of the grants will provide undergraduate scholarships, and there will be one postgraduate scholarship. Funds will be administered by the chemistry departments of the selected colleges and universities.

Crop Saver: Methoxychlor came to the rescue of Long Island farmers recently. The area, troubled with drought, was faced with an invasion of DDT-resistant Colorado potato beetles, and there was a \$30-million crop at stake. Apparently the insects had survived the mild winter, but they were unable to outlast sprays of the toxic residual insecticide.

Plant Annual: This week, USDA starts publication of its 1953 Yearbook of Agriculture, available soon at \$2.50/copy from the U.S. Government Printing Office (Washington, D.C.). It should be of particular interest to pesticide makers this year since it is devoted to plant diseases. Beginning with a general discussion on the economic effects of crop losses from plant diseases, the yearbook presents a series of articles based on recent research and written by noted plant pathologists.



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- (g) Tri (2-ethylhexyl)

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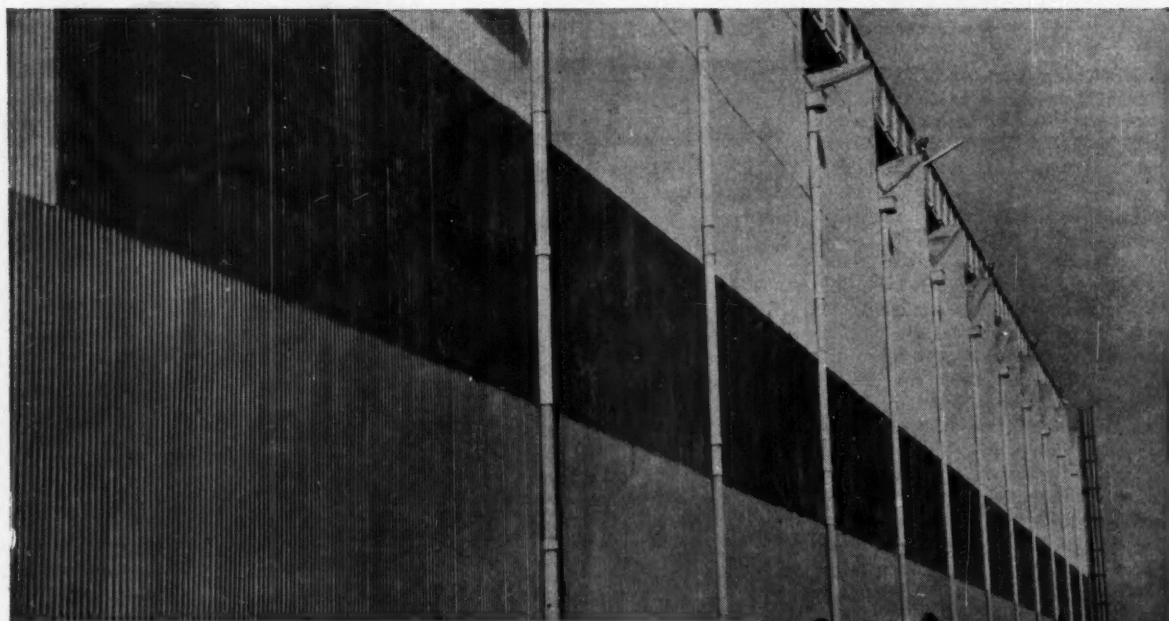
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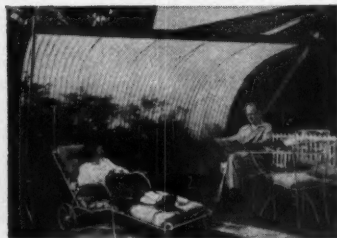
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NEW HERCULES CATALYSTS OFFER GREATER ECONOMY, STABILITY, EASY HANDLING



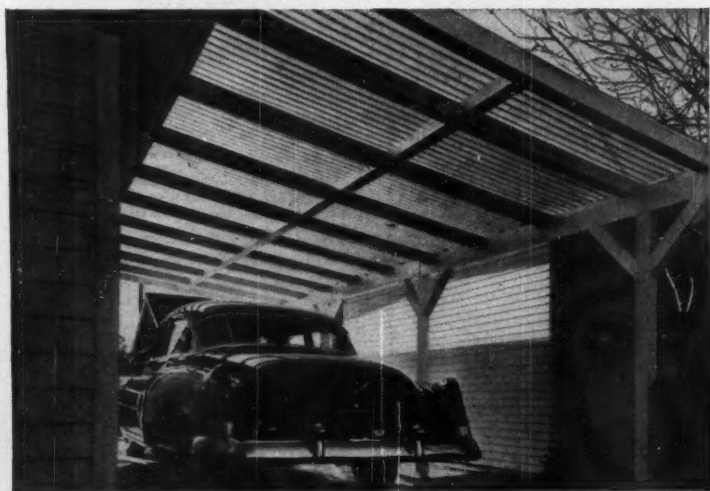
Hercules cumene hydroperoxide is used by Alsynite Company of America as a catalyst in the production of high-quality translucent polyester fiber glass panels in their plants at San Diego, Calif., and Portsmouth, Ohio. Some applications of these panels, ranging from sectional sidewalls to roofs, are shown on this page.



As polymerization catalysts for various chemicals, Hercules hydroperoxides offer many advantages. For example, they are widely used in the rubber industry, where they provide faster polymerization, especially at low temperatures.

There are three Hercules hydroperoxides: Cumene (CHP), Para-Menthane (PMHP), and Diisopropylbenzene (DIBHP). They are stable during storage, and resistant to inhibition. Economically priced, and available in liquid form, these Hercules catalysts minimize material and handling costs.

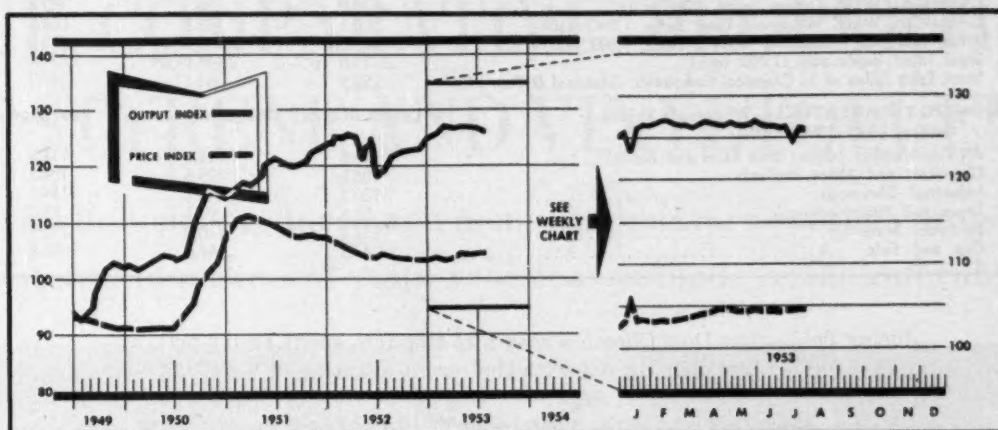
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MARKETS



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
 CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

Market place consensus, for the most part, reflects a cheery note this week. Majority of trade observers are discounting slump bugaboos at least for the balance of this year. Some doubt, too, that it will come even next year.

Chemical sellers are particularly happy. Reason: third-quarter price hikes, on an over-all basis, haven't significantly braked brisk sales movements.

Buyers, on the other hand, are getting some breaks too. Biggest price surprise of the week is the almost simultaneously posted—by Monsanto and American Cyanamid—7¢/lb. cut in acrylonitrile (see p. 67).

Another purse-easer is the whopping 6½¢/lb. price slash in thiourea schedules by one major producer. Officials say the drop is due more to stepped-up production through improved operations than to competition.

Though there's no word at the moment on what course other makers will follow, chances are most thiourea buyers will soon be paying these same lower prices: 40¢/lb. in c.l. quantities with minimum transportation allowed; 42¢/lb., l.c.l. West Coast customers can tack on an added 2¢/lb.

Some head-on—but quiet—price bucking among competitors has skittered shell molding resin prices down to an admittedly "unrealistic" level. The favorable-to-buyers chain-action price cuts have all makers now quoting 28¢/lb. (truckloads).

With the market for the resins nurturing a 6 million lbs./year appetite—and greater ballooning expected in the foreseeable future (CW, Aug. 23, '52)—not all producers are happy over the resins-pushing tactics employed in the market scrambling.

It's a cinch, though, that the price will climb again. Only deterrent that may delay the hiking—perhaps for months—is the "You do it first, I'll follow" attitude now prevailing.

Speculation—sparked by its future entry into the glycerine pro-

MARKET LETTER

WEEKLY BUSINESS INDICATORS

	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	126.0	126.1	121.8
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.8	104.7	102.3
Bituminous Coal Production (daily average, 1,000 tons)	1,565.0	1,542.0	1,572.0
Steel Ingot Production (1,000 tons)	2,170.0(est.)	2,146.0(act.)	2,017.0
Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)	255.9	251.1	247.7

MONTHLY INDICATORS—Wholesale Prices (Index 1947-1949=100)

	Latest Month	Preceding Month	Year Ago
All Commodities (Other than Farm and Foods)	114.8	113.9	112.5
Chemicals and Allied Products	106.3	105.6	104.2
Industrial Chemicals	120.2	119.2	114.7
Drugs and Pharmaceuticals	93.6	93.1	92.1
Fertilizer Materials	113.8	110.6	110.7
Oils and Fats	46.8	46.6	49.8

ducing field—that Dow Chemical may also step into epoxy resins-making—was given another firming pat with the recent granting of a \$950,000 bisphenol certificate.

More concrete is the promise of additional epoxy resin from the nation's No. 2 producer, Ciba. CW learns the company is now completing expansion at its Kimberton (Pa.) plant that will double existing capacity.

Market place interest in glycerine lately is further accented this week by Shell Chemical's flat-foot catching of the trade via an unexpected 3½¢/lb. price cut. The advantage, however, was short-lived. In a matter of hours most soapers had jumped in with reductions of their own.

Reason behind the slash: Though glycerine business is still fairly brisk, there has been some slackening in demand—enough to warrant the reduction, confirm a previous indication here of possible lower prices (CW Market Letter, July 18).

Obviously, though, Shell does not expect the easing to be a long-term situation; it's planning further glycerine expansion (see Newsletter, p. 9).

New tags on the synthetic material read 40¢/lb., tank cars; 41¢ in drums, l.c.l.

Washington is concerned that alkylate production facilities are inadequate to fill the country's needs. Persistence of military demand for aviation gasoline (CW, May 23) is borne out by the government's current polling of some 450 refiners.

Petroleum Administration for Defense officials—responsible for processing alkylate applications for certificates—give a double-pronged reason for the survey:

- To peg present individual company alkylate capacity, and
- To determine how much expansion is under way or planned.

Another government agency—the Atomic Energy Commission—will discommode some aerosol foam-product makers.

Shaving cream manufacturers are feeling the hardest nudge from Du Pont's notice that all its Freon 114 (dichlorotetrafluorethane) will be atomic-siphoned until Oct. 1.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending August 17, 1953

UP

	Change	New Price		Change	New Price
Synthetic glycerine, c.l. wks....	\$.035	\$.40	Hydrogen chloride, anhydrous, 50 lb. cyl., c.l. wks.	\$.045	\$.45

DOWN

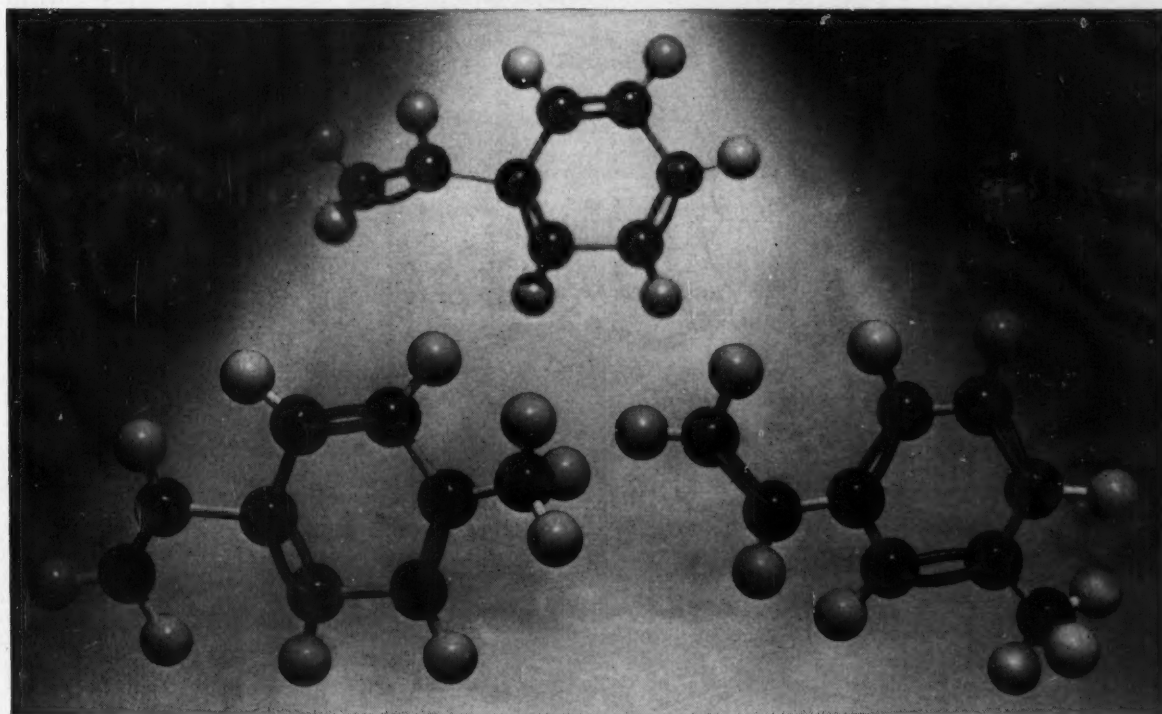
Acrylonitrile, drms., c.l. wks....	.07	.375	Benzene Hexachloride, tech., bags, c.l. wks. gamma unit/lb.	.001	.0075
Thiourea, tech, drms., c.l. wks.	.025	.42			

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PROPERTY	Vinyltoluene	Styrene N-99	Vinyltoluene Difference
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Monomer sp. gr. 25/25°C.	0.890	0.904	Lower
Polymer sp. gr. 25/25°C.	1.027	1.050	Lower
Monomer refractive index, @ 35°C.	1.5342	1.5439	Lower
Polymer refractive index, @ 35°C.	1.581	1.590	Lower
Boiling point, °C. @ 760 mm.	170-171	145	Higher
Flash point, °C.	60	31	Higher
Freezing point, °C.	-82.5	-30.6	Lower
Shrinkage on polymerizing, %	13.35	13.85	Lower
Purity, %	99.0	99.5	Mixed isomers

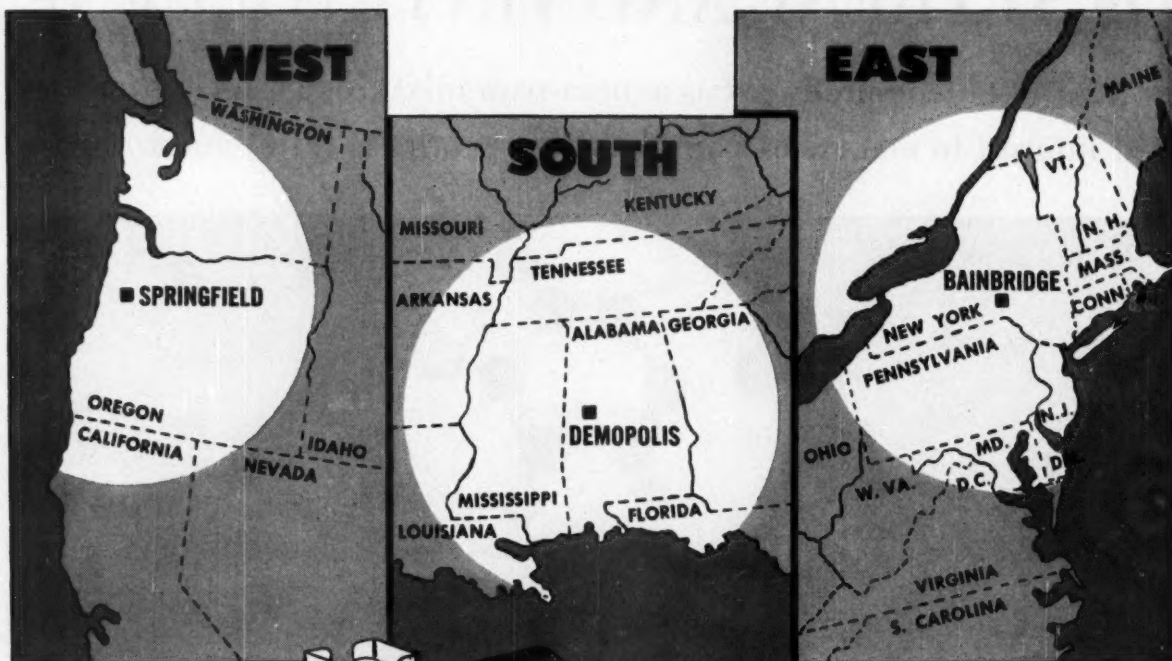
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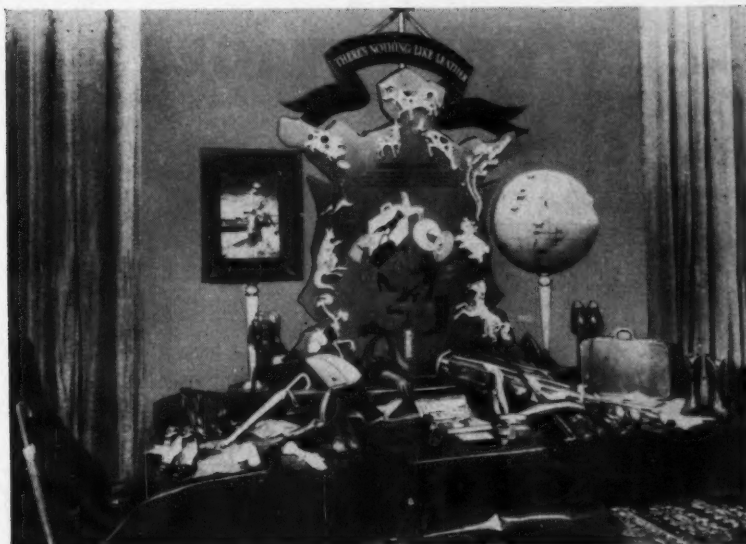
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NOT SO EXCLUSIVE: Traditional markets face a synthetic-encroaching problem.

Leather—Up and Out

An unfavorable raw material situation; a still-heavy leaning on foreign tannin supply; and plastic competition—these are three leather industry headaches.

But the outlook isn't too dark. Reasons: shoe sales stay up; syntans help out; promotion, research open new markets.

All eyes of the leather trade this week are focused on the first big event of the shoe season—the Spring and Sum-

mer (1954) Leather Showing being held in New York's Waldorf-Astoria hotel. And not a whit less interested

are chemical companies, for one of its oldest and steadiest customers—ranking about twelfth among industrial markets—is leather tanning and processing.

Although eclipsed by the colorful exhibits and displays at the show, the problems confronting tanners continue to furrow not a few brows. For leather is constantly in an anomalous situation.

Plastic Pushes: For instance, added to the comparatively new problem of inroads being made by plastic materials is the ever-present handicap of a too-small domestic supply of the tanners' raw material, skins and hides, to satisfy the growing demand for leather end-products.

This year tanneries will process nearly 125 million hides and skins (and probably a good half of that total is imported), which will produce more than \$4 billion's worth of finished leather products. Yet synthetics have bitten off a rough 60-65% of leather's sole market, chomped away at some other once-exclusive leather fields such as upholstery, luggage, shoe welting, belts and belting, instrument cases, "patent" sheeting, athletic equipment.

It is estimated that upwards of 6 million lbs./year of vinyl resins go into handbags alone. And the armed forces use thousands of molded vinyl instrument cases and binocular covers to replace leather, especially for tropical climes. Bugaboos like mildew and dampness have no effect on the vinyls.

Chemical Straddling: The chemical industry stands in the middle of this continuing leather-plastic conflict. On the one hand it has a paternalistic concern for the latter; on the other, a more than passing interest in the former. Each year the leather and allied industries consume approximately 400 million lbs. of heavy chemicals—a whooping near-\$8-million source of business.

A partial list of the chemicals used reads like a buyers' guide. For example: acetic, lactic, formic and glycolic acids control tan liquor acidity; bleaching processes consume sulfuric, oxalic acid, borax, and sodium carbonate; barium chloride, sugars, epsom salts, chalks, are needed for weighting and filling sole leathers.

Dyes, mordants, surface-active agents, vinyl chlorides, enzyme preparations, urea-formaldehyde dispersions, pigments, oils, waxes—these are but a few of the leather manufacturing essentials.

A major part of the production costs, however, involves tanning agents. Second only to the value of the

U.S. Consumption Major* Vegetable Tanning Materials

1953 (estimated)

Material	Principal sources	Millions of Tan Units**
Quebracho (liquid and solid)	Argentina, Paraguay	94.0
Chestnut extract	U.S.	47.1
Wattle bark and extract	Africa	31.0
Spruce extract	U.S., Canada	8.0
Mangrove bark and extract	Africa, Central and South America	8.0
Myrobalans	India	6.0
Valonia beads and extract	Turkey	4.0
Oak bark and extract	U.S., Canada	4.0
"Blended" extract	—	7.2
Hemlock bark and extract	U.S., Canada	2.0
California tanbark	U.S.	.75
Total		212.05

* Most widely used of the more than 30 items reported.

** Tan unit = 1 lb. of 100% extract.

tracers...to opportunities in the chemical

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MARKETS

can tanners off the foreign hook—not soon, but probably eventually.

Shoe Underpinning: Shoes continue to be the main leather outlet in this country. Some 85% of the skins and hides tanned in the U.S. wind up there; the remaining 15% are divided between such leathers as luggage, belting, harness-saddle, riding tack, clothing-glove, chamois, etc.

Stability of the shoe industry market is a welcome antidote for some of the tanners' economic headaches. For he can depend on a seldom-slackening demand. Published figures show that the per capita consumption of shoes varies slightly come depression or prosperity year. This regularity is reflected in the total annual production (see chart).

Research, Promotion: Leather is an ancient business, and often in the past its thinking has been described with a like appellation. But in recent years there have been some important changes—if not a technological upheaval. Tanners are, to an increasing extent, enlisting the chemist and public relations methods in the battle to better their position. Prime targets:

- Improvement of leather end-products.
 - Reduction of tan-processing time.
 - Education of the public in the valuable properties of genuine leather.
- Some new developments in the works, but not yet quite ready, promise to bolster the leather industries' stand. Dyeing techniques have been worked out that will almost eliminate "crocking" (or rubbing off of the color), also make it possible to turn out rainbow-hued leathers without sacrificing the inherent leather characteristics.

In the tanning field a new process called "Secotan" has the trade buzzing with excitement. Now in the pilot-plant stage, the method is said to cut tanning time down to a matter of minutes. If "Secotan" fulfills hopes of the researchers, it may well completely revamp tanners' operations.

But whether or not these new developments will ease the hiding that leather has been taking from plastics and economic factors, this much is clear: the venerable industry is revitalized; it will try hard to hold its own.

Space Filler

Most amateur woodworkers, and professionals, too, regard sawdust only as an unnecessary by-product of their carpentry efforts. But up in New England, the famed Yankee thrift and mechanical ingenuity last year ground up and sold 60,000 tons of sawdust in the form of wood flour.

Edward Gruen, reporting in the Federal Reserve Bank of Boston's *Monthly Review*, focuses upon a small-scale "feeder" industry that has for 50 years been expanding its unassuming role of taking up space as cheaply as possible. Gruen's 1952 estimates spot 60% of all U.S. wood flour as being ground out by seven New England plants.

The end use pattern for this 100,000-ton, 2¢/lb. filler breaks down like this:

	Tons
Linoleum	40,000
Plastics (mainly phenolics)	40,000
Roofing felt	10,000
Explosives	5,000
Rubber goods & misc.	5,000
Total	100,000

Because wood flour is absorbed by the rapidly shifting chemical process industries, at least two trends have been active in revising the consumption pattern since 1939, at which time about 50,000 tons were gobbled up.

- Phenolic molding powder (averaging 50% by weight wood flour) use shot up from 12,000 tons 13 years ago.
 - Linoleum use of wood flour rose from 25,000 tons.
- Peering ahead at a possible 150,000-ton pile of flour being ground out in 1960, a quick glance indicates further shifts may be counted on because of:
- A drift away from linoleum to other floor coverings.
 - A doubling expansion in phenolics together with possible use in ureas, melamines and some thermoplastics.

As an example of turning an honest penny out of a waste product, the wood flour makers seem likely to grind on for some years to come.

Acrylo Skid

Ramblings of a crack in the organic chemical price structure early last week reached the ears of CW. Then, in a not utterly unexpected move, Monsanto Chemical, one of the two marketers of acrylonitrile, hacked a 7¢ slice from the going price of that product. Effective immediately, the chemical about which has centered most of the synthetic fiber storm (CW, Aug. 8), was knocked down from 43¢/lb. to 36¢ (in tank car quantities).

And competition-quick rival American Cyanamid dropped its schedule into line with Monsanto's.

That the tag on acrylonitrile would eventually be marked down was prac-

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MARKETS

tically a foregone conclusion; the only question remaining seemed to be, "When?". Some months past, Cyanamid's Jim Weith promised that when his company's new plant, at Fortier, 18 miles out of New Orleans, went onstream, the price would immediately drop to 31¢. According to Weith, the economics of Cyanamid's huge installation, capacity of which is unofficially estimated at upwards of 75 million lbs., would permit this sharp price plummet.

But in contrast with the Cyanamid "scheduled" reduction, which would likely have taken place early in 1954, the present unsigned cut appeared to be a sudden decision.

Queried for the behind-the-scene details of this action, C. F. "Nick" Trombley, of Monsanto's Texas Div., volunteered:

• "Monsanto wanted to get the jump on other producers because of price cuts in the offing." Trombley suggested that his company's action was merely anticipating competition.

• "Recent improvements in process" permit the reduction to be put into effect.

• "Monsanto hopes price reductions will stimulate new uses for acrylonitrile."

Other close-to-the-scene observers agree fervently with Trombley's third reason. Right now, acrylonitrile needs more outlets; capacity far outstrips demand.

Less than a year ago, with virtually all the material emanating from Cyanamid's Warner's Plant, supply and demand were in fair balance at about 40 million lbs.

But when both Carbide and Monsanto went onstream late last year, the picture switched from a state of balance to 1953 capacity of 125 million lbs. vs. 1953 consumption of 95 million lbs.

Aggravating this imbalance is, of course, the recent acrylic fiber tangle at Chemstrand. Unfortunately, just about the time Monsanto's Texas City plant was adding 60 million lbs. to the acrylonitrile capacity, its half-owned (with American Viscose) outlet cut back to a small fraction of its requirements.

Chemstrand's Acrilan was expected to take a 25-million-lb. bite of Monsanto's production. Therefore, a quick calculation shows that current overcapacity for the industry now stands at approximately 55 million lbs.

Looking at it from long-range, no one denies that all the acrylonitrile will be taken up. Just now the consensus seems to be, too much too soon.



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Uses of RCI Products

CANVAS, PAPER AND GLASS CLOTH LAMINATES: PLYOPHEN cresol, phenolic and resorcinol-formaldehyde resins and varnishes; RCI polyester resins.

CARBON PAPER: RCI inorganic chemical pigment colors.

CASTINGS: FOUNDREZ powdered phenolic resins (for the shell molding process); FOUNDREZ liquid phenolic resins and FOUNDREZ core oils (for core binders).

FURNITURE, PLYWOOD, FLOORING, HARDBOARD AND CHIPBOARD: HYDROPHEN phenolic glues; PLYACIEN protein glues; PLYAMINE urea-formaldehyde glues; PLYOPHEN phenolic and resorcinol-formaldehyde glues.

LEATHER: BECKOSOL alkyd resins (for leather finishes); PLYOPHEN resorcinol-formaldehyde resins, SUPER-BECKACITE pure phenolic resins, SYNTH-COPAL ester gums (for leather adhesives).

LINOLEUM: BECKOSOL alkyd resins and PENTACITE pentaerythritol resins (for linoleum coatings); RCI inorganic chemical pigment colors.

PAINTS, VARNISHES AND LACQUERS: BECKACITE (1) fumaric, (2) maleic and (3) modified phenolic resins; BECKAMINE urea-formaldehyde resins; BECKOLIN synthetic oils; BECKOPOL modified phenolic resins; BECKOSOL (1) phenolated, (2) phthalic-free, (3) rosin modified, (4) pure drying and (5) pure non-drying alkyd resins; KOPOL processed Congo copals; PENTACITE pentaerythritol resins; STY-RESOL styrenated alkyd resins; SUPER-BECKACITE pure phenolic resins; SYNTH-COPAL ester gums; WALLKYD pure drying alkyd resins (for alkyd flat wall vehicles); WALLPOL vinyl-type copolymer latex emulsions (for latex flat wall coatings); RCI inorganic chemical pigment colors.

PAPER: BECKAMINE urea-formaldehyde resins (for adding wet strength, improving the wet rub of starch-clay coatings, and waterproofing starch adhesives); RCI inorganic chemical pigment colors (for paper coloring); STYRESOL styrenated alkyd resins (for paper coating).

PRINTING INKS: BECKACITE fumaric, maleic and modified phenolic resins; BECKOLIN synthetic oils; BECKOPOL modified phenolic resins; RCI inorganic chemical pigment colors.

TYPEWRITER RIBBONS: RCI inorganic chemical pigment colors.

WAXES AND POLISHES: BECKACITE modified maleic resins; SUPER-BECKACITE pure phenolic resins; SYNTH-COPAL ester gums.

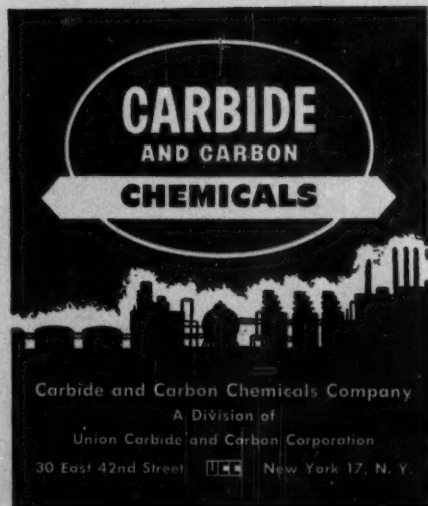




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